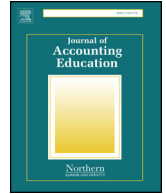




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Main article

Data-driven decision-making and its impact on accounting undergraduate curriculum[☆]

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ABSTRACT

Data analytics appears soundly entrenched within both professional accounting and business environments. However, the role of data analytics within undergraduate accounting education does not appear to be well understood either by practitioners or academics. This study addresses the curriculum impact of the data-driven decision-making evolution by investigating the knowledge, skills, and abilities (KSAs) specifically needed *within accounting curricula* (as opposed to other disciplines within and outside of the business school). Based on prior literature and suggestions from interviews with business professionals, this study identifies a set of possible KSAs—incremental to technical accounting knowledge—useful for helping accountants succeed in the evolving data-driven decision-making environment. Using these KSAs, this study surveys business professionals and faculty from a set of representative accounting programs to better understand their desired emphasis on the KSAs as compared to traditional technical accounting knowledge. We find that compared to accounting faculty, business professionals desire an equal focus across all types of KSAs rather than on a detailed understanding of technical accounting knowledge traditionally emphasized in classrooms. We believe that this study's results suggest a desired shift towards a more “scientific method” approach in which students use their understanding of business and accounting to ask questions, perform research, and seek out additional information to test alternate solutions (often using quantitative analyses) to evolve their accounting knowledge. Additionally, we provide results of a survey of business professionals on potential types of traditional accounting topics to deemphasize and thus provide opportunities to more thoroughly integrate additional KSAs into the accounting curriculum.

1. Introduction

This study addresses the need for the accounting undergraduate curriculum to evolve and adapt to changes within the business world associated with moving into a data-driven decision-making paradigm. Specifically, we (i) review literature and interview business professionals to identify and refine appropriate knowledge, skills, and abilities (KSAs), (ii) survey accounting practitioners and academics to understand their desired emphasis across the KSAs, and (iii) survey accounting practitioners to identify opportunities to modify technical accounting curriculum to include additional focus on the KSAs. Further, this paper shares key insights from this process at the authors' institution that should help other accounting programs in creating and pursuing a similar process.

The traditional competitive advantage for accounting has been its ability to provide relevant and reliable information to improve

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business decision making. The increasing demand for real-time, predictive information requires performing *data analytics* and the ability to use *big data* sets to maintain such an advantage. Numerous factors suggest that data analytics already is significantly integrated within the professional accounting environment and the academy. Examples of such additional focus on analytics within the academy include: (i) the Pathways Committee recommendation for additional emphasis on technology and analytics (AAA & AICPA, 2012), (ii) the AACSB implementation of accounting Standard 7 focusing on technology and analytics, (iii) AAA sponsorship of multiple “Accounting IS Big Data” conferences to improve awareness and communication, (iv) special issues on big data and analytics within multiple academic journals (e.g., *Journal of Accounting Education*, *Accounting Horizons*, and *Journal of Emerging Technologies in Accounting*), and (v) accounting firm involvement through data sets and analysis tools, curriculum grants, case studies, and whitepapers.

There have been many calls for integration of analytics within accounting education. However, we believe the identification of which requirements to include in an undergraduate curriculum remains an unanswered question. Most attempts to address data and analytics appear to focus on analytics as a secondary or additional skill beyond technical accounting, typically addressed through specialized elective courses, as part of a masters’ program or requiring one or more courses dedicated to data analytics.

The American Institute of Certified Public Accountants (AICPA) 2015 Trends in the Supply of Accounting Graduates report indicates that the number of awarded masters in accounting degrees is approximately 40–50% of the number of awarded undergraduate accounting degrees (American Institute of Certified Public Accountants (AICPA), 2015). Therefore, we believe that analytics needs to be considered at the undergraduate level. Attempts to develop analytic skills focused on areas outside of accounting courses also are increasingly becoming requirements of the general business curricula (or even as part of an accounting major). In fact, starting in 2018, the AACSB now requires data analytics to be covered as part of the general business knowledge area (AACSB, 2017, Standard 9).¹ Prior literature suggests that students learn general skills when they are reinforced and integrated in domain specific contexts (e.g., Bransford et al., 1986; Johnson, McGuire, & O’Neill, 2015). Building on this literature, this study argues that data analytics should impact education across the entire accounting curriculum and be integrated with traditional technical accounting knowledge within accounting courses.

This paper reports data collected from (i) interviews with over 20 senior business professionals from both public accounting firms and large companies across major industries, (ii) a survey of approximately 400 business professionals with accounting degrees from the authors’ institution, and (iii) a survey of over 50 accounting faculty invited to a national accounting symposium. Our results suggest a desire from business professionals for curricula with a “scientific method” mentality that emphasizes a broad set of KSAs along with traditional technical knowledge. The scientific method focuses on abilities to ask research questions, identify theories or study business environments to form hypothesized solutions, gather data and test models to provide insight regarding possible solutions, and communicate recommendations to decision makers.

Through a review of literature and interviews focused on data-driven environments, this study identifies data analytics, holistic business knowledge, research skills, technology and tools, unstructured problem solving, and writing/communication as additional KSAs (beyond traditional technical accounting) that help create a scientific method mentality. Interestingly, we find discrepancies between the perspectives of accounting professionals and academics regarding the desired allocated weightings for the KSAs. Specifically, professionals favor a fairly equal weighting, while academics continue to weight technical knowledge relatively higher than the other KSAs. Survey results provide insights into potential areas where traditional undergraduate curriculums might be modified to include additional focus across the set of KSAs. The following sections provide motivation and descriptions of the KSAs, survey approach, and results, followed by a discussion that summarizes our findings and identifies potential research opportunities and potential limitations of this research.

2. KSAs in a data-driven decision-making environment

2.1. Data-driven decision making—big data and data analytics

Today’s data-driven environment is characterized by the presence of “big data” that involves characteristics of data sets such as data structure, volume, velocity of change, variety, and variability. These data include traditional data (e.g., point-of-sales data and accounting system data) and newly available and often unstructured data sources (e.g., social media data). The data-driven evolution leads organizations to modify work practices and requires additional skills focused on innovative data acquisition and analysis practices to provide a competitive advantage for organizations across all of their business practices (Davenport, 2006; McGuire, Manyika, & Chui, 2012).

Consistent with their role in business, accountants and other intermediaries should serve important roles in the decision processes of data-driven decision making—identifying problems, considering alternative courses of actions, and presenting the results of actions taken (Davenport, 2013; Waller & Fawcett, 2013). Brand and Holtzblatt (2015) argue that “management accountants are positioned to play a key role in the implementation and application of business analytics in their organizations as they move beyond traditional, transaction-based accounting to analytics” (p.1). Overall, Manyika et al. (2011) suggest that by 2018, the United States

¹ Specifically, Standard 9 of the AACSB Business Accreditation Standards states that “Evidence-based decision making that integrates current and emerging business statistical techniques, data management, data analytics and Information technology in the curriculum. Student experiences integrate real-world business strategies, privacy and security concerns, ethical issues, data management, data analytics, technology driven changes in the work environment, and the complexities of decision making” (AACSB 2017, 34).

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