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Introduction to Accounting Education and Research Design

1.1. The Purpose of the Book

As the accounting profession undergoes a significant transformation driven by technological innovation and sustainability, accounting education must follow along said trends, to ensure graduates are able to effectively master the profession. In a world that is increasingly interconnected yet constantly evolving, and in a competitive landscape where stakeholders are more demanding and aware, accounting education faces the challenging task of producing the accountants of tomorrow, ensuring they have the skills required to address modern challenges. These challenges are varied and take different forms. For instance, as companies around the world face growing scrutiny from stakeholders regarding their environmental, social, and governance (ESG) performance, accounting curricula must be profoundly rethought to integrate these topics (Botes et al., 2023; Simmons et al., 2024; Tettamanzi et al., 2023). Accountability and ESG reporting are often viewed as the next major challenges for companies worldwide, requiring significant efforts to update the skill sets of accounting professionals to meet the evolving needs of both companies and stakeholders (Vanini & Bochart, 2024).

Similarly, technology represents a new frontier for accounting education. This frontier is multifaceted. On one hand, accountants will frequently interact with and use complex technologies, including big data and artificial intelligence (AI), to perform their daily tasks (Fogarty & Campbell et al., 2021; Theuri et al., 2024). Like ESG accounting, academic curricula need updating to reflect the changing landscape of the modern accounting workplace and the proficiency in technology expected from accountants today (Al-Hattami, 2024; Handoyo, 2024; O'Hara et al., 2024). On the other hand, technology can be a valuable tool for accounting education itself. The COVID-19 pandemic

taught many lessons, and most institutions are now comfortable with the extensive use of technological options such as distance learning and asynchronous online teaching materials, which serve as practical alternatives to traditional, face-to-face (F2F) delivery of accounting courses (Elsayed et al., 2023). However, given that accounting is a practical, number-oriented discipline, distance learning creates unique challenges for educators (Elsayed, 2022; Maldonado et al., 2023).

Thus, the future of accounting education is characterized by exciting new opportunities, conflicting dilemmas, disruptive potential, and challenging barriers to overcome. With this book, I aim to provide a critical, state-of-the-art review of accounting education and the various trajectories that will shape research and practice in the future. The book is designed to offer critical insights and suggestions on where accounting education currently stands in its evolution and where its path will lead in the coming years.

A bibliometric approach, paired with both qualitative and quantitative empirical case studies, will be adopted to provide robust findings and address some of the key research gaps emerging from the review of the stream. Additionally, the Latent Dirichlet Allocation (LDA) algorithm will be employed to classify and analyze the text corpus, formed by abstracts and titles of scientific articles extracted from a prominent academic database, namely Scopus. LDA allows for the processing of large bodies of textual information using a generative probabilistic model for topic identification. In other words, LDA acts as an unsupervised machine-learning technique that can derive topics from a corpus of text based on the occurrence of specific words in the database (Li et al., 2025; Liu et al., 2025).

The book will be structured as follows:

Chapter 1 will focus on the methodological implications of the study and its research design. I will provide an in-depth overview of the research protocol and methodology applied in the bibliometric review. I will explain why an integrated approach, combining both quantitative bibliometric research and qualitative insights from accounting educators, is the best fit for this book. The research design aims to provide a critical analysis of the current state-of-the-art in accounting education while offering a comprehensive overview of the future trajectories for educators and scholars. Several papers from the business and accounting fields support this choice, which was sparked by my attendance at the 2023 European Accounting Association conference, where I had the opportunity to discuss the topics of this book with Professors Greg Stoner and Nicola Beatson. The chapter will also present the tools used for the bibliometric analysis, namely R Studio, LDAShiny, and Bibliometrix, along with the protocols for sampling manuscripts from available scientific repositories.

Chapter 2 will examine how rapid technological advancements have impacted accounting education, as they have in other fields. Although various experiments with implementing technology in accounting education have been conducted over the past couple of decades, interest from both scientific and institutional circles sharply increased during the COVID-19 emergency. In the post-pandemic landscape, the use of technology in accounting education is now inescapable, offering several advantages for both educators and students. For example, blended learning, online platforms for downloading teaching materials, and virtual classrooms that allow students to attend lectures remotely. However, with these new opportunities come several challenges and barriers to adoption, particularly in accounting, where the technical nature of the subject makes asynchronous online learning more difficult. During physical classes, students can receive constant and tailored feedback from teachers, which is harder to achieve remotely or through blended learning. Thus, the chapter will critically evaluate studies exploring the effects of technology adoption in accounting education. The extensive bibliometric analysis will be complemented by on-field interviews with accounting educators from 2020 to 2024. The chapter will cover the benefits, barriers, and drawbacks of technology adoption in accounting education, concluding with an empirical case study on the use of blended learning in the post-pandemic era.

Chapter 3 will follow up on the discussion of technology's impact on accounting education by focusing on its use for gamification. Educators have experimented with incorporating game design techniques into accounting courses to boost engagement and enjoyment. The results have shown not only increased engagement from students, but also improved problem-solving and soft skills required in the modern workplace. Although gamification has been widely studied in various fields, its application to accounting education is especially interesting because of the practical nature of business subjects. While scholars generally agree that gamification increases engagement and understanding in accounting courses, the results are not universally applicable, and much of the research is exploratory and contradictory. This chapter will provide a critical review of the application of game-based learning in accounting education and its limitations. Additionally, it will include an empirical study using structural equation modeling to examine students' perspectives on game-based mobile learning applications. The study aims to shed light on the factors influencing the adoption and continued use of these tools, filling an important gap in the literature.

Chapter 4 will address another key area that emerged from the bibliometric sample: the need for academia to update accounting curricula in response to rapid changes in the professional world. New technologies and the growing

need for sustainability and ESG reporting are reshaping the accounting profession. This chapter will present scientific findings and highlight the gap between current accounting education and employer expectations. An empirical case study will explore the perspectives of practitioners and educators on the need for accounting education to evolve and modernize in response to these changes.

Finally, the concluding chapter will summarize the key points discussed and propose a structured research agenda to advance accounting education. Based on a critical analysis of the evidence from the bibliometric sample, I will identify critical gaps in the field. Several areas of accounting education research remain underdeveloped, particularly regarding the impact of digital technologies on course delivery, gamification in accounting education, and the need for curricula updates to match the evolving demands of the professional marketplace.

This book aims to be a comprehensive reference for both present and future research in accounting education, providing scholars with a thorough understanding of its current state and past trends, as well as serving as a resource for future research efforts. The innovative bibliometric analysis sets this book apart from previous reviews, and by combining qualitative case studies and quantitative field analysis, I aim to provide unique insights that will enrich the field of accounting education.

1.2. Research Design Overview

While accounting education is a promising stream of research due to several factors—namely, the relevance of accounting as a profession, the intricacies of its teaching delivery, and the frequent need to keep curricula aligned with the current professional landscape—the scientific output in this area is currently fragmented and marked by significant research gaps and unexplored topics. Most papers in accounting education literature are exploratory in nature and based on empirical data sets (Blondeel et al., 2024; Huber et al., 2024; Zotorvie et al., 2024), raising concerns about the replicability and generalizability of their findings. This state of the field piqued my interest and motivated me to adopt a comprehensive, quantitative machine-learning approach to provide a critical, in-depth examination of how this research stream has evolved across its past, present, and potential future.

Synthesizing past research has always been a crucial task for accounting and business scholars, as it allows them to present a comprehensive state-of-the-art analysis of a given topic while simultaneously identifying future re-

search directions through a critical analysis of findings (Doddauarthi Basavaraj et al., 2024; You et al., 2024). The most traditionally used method for synthesizing existing research is the qualitative approach of a structured literature review. This method enables scholars to identify a focused sample of papers on a specific topic, analyze them critically, and derive insights into what has already been established and what remains to be explored. Given the extensive number of systematic literature reviews already present in the field of accounting education (Nurkhin et al., 2024; Paisey et al., 2024; Pargmann et al., 2023; Kroon & Alves, 2023), my goal is to introduce an alternative method—quantitative in nature and powered by machine learning—which, to the best of my knowledge, has not yet been applied to this domain.

Bibliometric methods are not new to accounting and business research and have gained increasing popularity in recent years, primarily due to the development of online repositories such as Scopus and Web of Science, which provide easy access to bibliometric data on thousands of scientific articles (Jankalová & Jankal, 2024). The accessibility of these resources, along with freely available tools for bibliometric analysis, such as VOSviewer, has made bibliometric research a viable alternative to traditional qualitative literature reviews. However, to date, only two notable attempts have been made to review accounting education literature using a bibliometric approach. Kumar et al. (2020) analyzed the scientific output of the *Asian Review of Accounting* journal, while Handoyo (2024) focused on the use of information technology in accounting classrooms. The latter study's insights, particularly its suggestions for future research into themes like gamification and curriculum modernization, inspired the present book, which aims to answer their call for further bibliometric studies.

The limited number of bibliometric reviews in accounting education underscores the uniqueness of this book, at least in my intentions. To distinguish my work further from that of Handoyo (2024), I aim to go beyond traditional bibliometric methods by employing a hybrid approach that integrates bibliometric analysis with machine learning techniques, specifically Latent Dirichlet Allocation (LDA). This combined method will allow for the identification and analysis of topics within the literature stream of accounting education research, as introduced in the first chapter of this book.

The decision to use a structured, bibliometric approach powered by LDA and machine learning stems from several considerations. First, as mentioned earlier, accounting education research currently lacks bibliometric studies, making this book a unique contribution to the field (Doddauarthi Basavaraj & Jaya Prakash, 2024; You et al., 2024). Second, bibliometric methods offer significant advantages, including the ability to extract comprehensive infor-

mation on sources, articles, authors, and subjects, as well as to explore the interrelationships between topics and documents and their evolution over time (Singhania & Swami, 2024). Additionally, the transparency, academic rigor, and replicability inherent in bibliometric research protocols make them a valuable supplement to qualitative reviews, providing a holistic understanding of the field and its historical development.

Given my goal of making this book a single-source reference for scholars and practitioners interested in the current and future perspectives of accounting education, its scope extends beyond offering a comprehensive overview of the field. It also aims to provide a transparent and replicable set of guidelines for conducting bibliometric research powered by machine learning. By addressing the scarcity of bibliometric studies in accounting education, I hope this work will serve as a valuable reference for scholars seeking to explore or expand the use of bibliometric methods in this domain.

1.3. The Educational Scope of the Research

Accounting education is a vast field that encompasses a wide range of courses and activities. In the following sections, I provide an overview of the key areas of accounting curriculum discussed throughout this book to give readers a clear understanding of the scope.

Financial accounting is the branch of accounting focused on processing and recording financial transactions resulting from business operations over a specific period. These transactions are reported in various financial statements and documents, such as the balance sheet, income statement, and cash flow statement. Students studying financial accounting are introduced to the guidelines established by the Financial Accounting Standards Board (FASB), commonly referred to as Generally Accepted Accounting Principles (GAAP). Financial accounting is particularly popular among accounting students due to its high applicability in the professional world. Every registered company requires professionals with these skills to monitor financial performance over time, diagnose and resolve financial issues promptly, and manage expenses effectively.

Managerial and cost accounting courses, often taught in the second year of undergraduate programs or as part of graduate studies, are another critical area of accounting education. While there is some overlap with financial accounting—both involve the use of financial information—managerial accounting has a distinct focus. It emphasizes the interpretation and communication of financial and economic data to assist managers in achieving organizational goals. Unlike financial accounting, which is governed by accounting stand-

ards, managerial accounting is more strategic and flexible, aimed at helping managers make well-informed decisions based on collected data. These differences are significant enough that managerial and financial accounting are typically taught as separate courses.

In addition to financial and managerial accounting, other specialized courses fall under the umbrella of accounting education. Topics such as auditing, forensics, taxation, and fraud management are highly respected professions within the accounting field. These subjects are often included in business curricula alongside foundational accounting courses. Auditing, forensic accounting, tax, and fraud management share some challenges with financial and managerial accounting, particularly in preparing graduates to be job-ready upon completing their studies. However, these specialized areas are less frequently explored in academic literature compared to financial and managerial accounting. A similar trend applies to courses on accounting information systems, which are generally offered at the graduate level due to their advanced nature. Consequently, these courses are less commonly featured in scientific research.

1.4. A unique approach to bibliometric reviews: Latent Dirichlet Allocation topic modeling

In an effort to differentiate my book from existing literature reviews on accounting education, I adopt Latent Dirichlet Allocation (LDA) topic modeling to identify key and emerging themes from scholarly literature. Topic modeling (Blei, 2012) has grown in popularity due to the significant increase in accessible electronic document archives for scholars worldwide. Platforms such as Scopus and Web of Science provide immediate access to an extensive collection of records, all readily available for download.

As scholars strive to keep pace with the ever-increasing volume of scientific research being conducted and published, it is unsurprising that many have sought more feasible alternatives to manual content analysis. This method becomes impractical when analyzing large volumes of textual data. Consequently, researchers have turned to innovative techniques for detecting patterns in text and deriving insights from the vast amount of information available electronically through repositories like Scopus and Web of Science, as well as other online sources such as social media and websites.

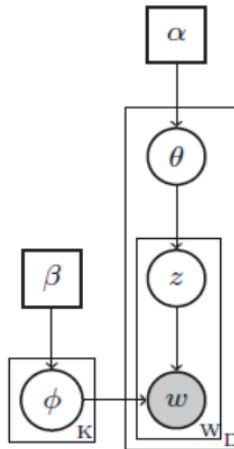
Topic models address this need by summarizing textual data through hierarchical probabilistic frameworks. These models reveal latent patterns in text by analyzing word usage and distribution throughout a document. This approach enables scholars to comprehensively understand the topics under discussion,

their relative importance, and the associated keywords (Zhang et al., 2017). The foundational premise of topic modeling is that documents represent a mixture of topics, and topics are, in turn, a mixture of words, all governed by probabilistic distributions. Another key assumption is the “bag-of-words” model, which emphasizes the occurrence of individual words over their order within the text.

Several types of topic models exist, including Latent Semantic Analysis (LSA), Probabilistic Latent Semantic Analysis (PLSA), LDA, and the Correlated Topic Model (CTM). These approaches have become increasingly popular in accounting research, particularly among reporting scholars (Maibaum et al., 2024; Park, 2024). They are also widely used in bibliometric studies due to their ability to process large datasets that would be impractical to analyze manually. For this book, I have chosen LDA, drawing inspiration from numerous established bibliometric research protocols that employ this technique (Dana et al., 2024; D’Amato et al., 2017).

As previously mentioned, LDA is a statistical model commonly used in natural language processing and machine learning for topic modeling in textual datasets (Ligorio et al., 2022). It uncovers latent topics in large document collections without requiring prior knowledge of the data’s contents. In other words, LDA is an unsupervised algorithm that identifies latent topics without predefined assumptions. As a clustering algorithm, LDA employs a hierarchical Bayesian approach to derive these topics, making it particularly valuable for analyzing extensive textual datasets that would be too time-consuming for manual examination. Figure 1.1 below illustrates the LDA algorithm’s workings.

Figure 1.1. – *Graphical representation of the LDA topic modeling algorithm*



LDA models assume that each document (D) comprises a mixture of latent topics (K), where each topic consists of a multinomial distribution of words (W) from the vocabulary. The parameters for the topics within a document are represented as θ_j , and the parameters for words within a topic are represented as ϕ_k .

Before conducting LDA analysis, the first step is to prepare the corpus for processing by the algorithm. In this research, the corpus was compiled by downloading the necessary bibliometric data from Scopus, which served as the primary database for this study. However, LDA requires specific preprocessing steps, making it impossible to use the raw data directly from Scopus without prior manipulation. This preprocessing involves “cleaning up” the text, which includes converting uppercase letters to lowercase, removing stopwords, numbers, and whitespaces.

While converting text to lowercase is straightforward, the removal of stopwords requires some explanation. Stopwords are words that are typically filtered out during natural language processing because they frequently occur but hold minimal significance for analysis. Examples of stopwords include “the,” “is,” “at,” “which,” and “on.” These words are typically included in universally accepted stoplists or negative dictionaries. If retained in the corpus, stopwords can skew results and hinder meaningful interpretation. For this study, I employed the SMART (System for the Mechanical Analysis and Retrieval of Text) stoplist, available in the R Studio stopword package, to remove such words.

After preprocessing the text, the topic modeling method is applied, dividing the data into clusters of words, each representing a distinct topic. A key consideration at this stage is determining the optimal number of clusters or topics to derive from the model. Models with too many topics can become overly narrow, defeating the purpose of synthesizing large bodies of text. Conversely, models with too few topics can be equally problematic, as they include an excessive number of words per topic, making interpretation difficult. To ensure an effective balance, several tests are employed to assess model performance, as detailed below.

While topic models typically consist of five to ten clusters, more precise assessments are conducted using model-fit analyses. One common approach involves calculating the probabilistic model’s log-likelihood score, where higher scores indicate better model fit. Additionally, the perplexity score measures the model’s ability to predict the content of a sample; an optimal model features a high log-likelihood and a low perplexity score. Another key measure is the topic coherence score, which evaluates how well the top recurring words within a topic form a semantically meaningful cluster. This score

helps identify whether a topic is genuinely interpretable or merely an artefact of statistical inference.

The above tests will be conducted once the sample is extracted from Scopus, setting the foundation for the next section of this study.

1.5. Bibliometric overview of the Accounting Education field

As discussed above, while research exploring accounting education has been steadily growing, the current state of the field remains fragmented. Nevertheless, several significant contributions have emerged. When considering the substantial room for future development, the overall outlook appears promising for further advancements. In alignment with this perspective, I draw inspiration from the words of Handoyo (2024), who emphasized the need for further bibliometric efforts to critically evaluate the intersection of accounting and education. With this in mind, I aim to analyze current trends in accounting education and, in doing so, anticipate future developments with a proactive approach designed to bridge the gap between educators, scholars, and policy-makers.

To enhance the bibliometric analysis, qualitative and quantitative research methods have been integrated into later chapters of this book. Data gathered from both students and faculty members complement the themes identified through quantitative bibliometric analysis, addressing prominent gaps and providing a richer understanding. Combining these approaches was deemed most effective, as it accounts for the complexities and nuances of blended learning adoption in accounting classrooms, the application of gamification, and the need to update accounting curricula.

The bibliometric analysis was conducted using the Scopus database (Alida Volkmer & Meißner, 2024). The keyword “Accounting Education” was adopted following established methodologies for reviewing scientific literature in this field. Scopus was chosen due to its widely recognized reliability for accounting and business research, as well as its extensive repository of scientific documents. Additionally, Scopus provides bibliometric metadata, including abstracts and keywords, which are essential for subsequent analysis.

The initial search yielded 2,180 distinct documents without applying any filters. Since Scopus includes a wide range of publication types, such as peer-reviewed journals, conference proceedings, and book chapters, a more stringent filtering strategy was necessary to exclude gray literature. To ensure the relevance and quality of the sample, two filters were applied: