A New Form Textbook Framework for Financial Big Data Analysis Based on RPA

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Abstract. Big data has put forward new requirements for traditional financial accounting theory and practice. However, the research and publication of textbooks on financial big data analysis are still in their infancy. RPA supports code-free development, which is relatively easier to use than Python and more universally convenient than BI. However, current research on RPA in the field of finance and accounting and the textbooks published lack a comprehensive and complete analysis of financial big data. This study proposes a new form of textbook construction framework path for financial big data analysis based on RPA and provides specific implementation plans. It mainly includes building project-based, digital, and modular textbooks; summarizing the basic operations of using RPA for financial big data collection and organization; realizing specific RPA operations for different aspects of solvency, operation, profitability, and development capabilities; and completing comprehensive capability analysis and forming analysis reports.

Keywords: RPA; Financial Big Data Analysis; New Form Textbook

1. Introduction

In recent years, RPA (Robotic Process Automation) tools have entered the field of view of finance and accounting personnel. The current mainstream RPA platforms integrate artificial intelligence technology, support code-free development, and ordinary finance and accounting personnel only need a small amount of learning to rely on RPA technology at a low cost. Combined with the automation of financial data analysis processes, they can carry out intelligent analysis, achieving a series of functions such as data collection, recording, calculation, analysis, and reporting.

RPA is easier to use than Python and more universally convenient than BI. However, current research on RPA in the field of finance and accounting and the textbooks published involve many articles on financial basic operations, but few on financial analysis, lacking a comprehensive and complete analysis of financial big data.

M. R. Mohyuddin and N. A. D. IDE (eds.), *Proceeding of the 2024 International Conference on Diversified Education and Social Development (DESD 2024)*, Advances in Social Science, Education and Humanities Research 899,
https://doi.org/10.2991/978-2-38476-346-7_15

2. Literature Review

In the literature retrieved from WOS, Li (2023) proposed an automatic financial and economic information system based on RPA and big data analysis algorithms, which improved the financial work efficiency to 92.3% [1]; Ma & Jia (2022) discussed the application of RPA technology in the financial robots of small and medium-sized enterprises and proposed suggestions to help small and medium-sized enterprises achieve digital transformation [2]; Chen & Tomar (2023) used RPA technology and big data algorithms to capture and correlate sales accounting related data, improving efficiency and accuracy [3]. These literatures show that RPA technology plays an important role in the automation of financial processes, which can significantly improve accuracy and efficiency.

In the literature retrieved from CNKI, Cheng Ping (2022) conducted a substantial analysis and discussion on RPA financial analysis robots, focusing on the construction and development of the technology model, and is relatively brief in specific financial analysis applications [4]. Other literatures have studied financial big data analysis, RPA, new form textbooks, and teaching respectively, but lack integration [5-16].

3. Survey of Learning Situation

This study selected finance and accounting professional students who have studied both Python and RPA as samples for the survey, focusing on the teaching of financial big data analysis related to RPA. A total of 133 questionnaires were distributed, and 126 valid questionnaires were collected. The statistical results are shown in Table 1.

TABLE I. STUDENT QUESTIONNAIRE SURVEY STATISTICS

No.	*Point of Investigation*	*Number /Weight*	*share*
1-1	RPA can be used in actual work	123	98%
1-2	Python can be used in actual work	24	19%
2-1	Need to learn the basic use of tool platforms	116	92%
2-2	Need to learn data collection and cleaning	104	83%
2-3	Need to learn analysis of solvency, operation, profitability, and development capabilities	93	74%
2-4	Need to learn comprehensive capability analysis	96	76%
3-1	New form textbooks are necessary, effective, and better	124	98%
3-2	Need teacher guidance even with new form textbooks	133	98%
4-1	New form should be project-based	2.755446	
4-2	New form should be digital	2.650952	
4-3	New form should be modular	2.052609	

The survey shows that students believe it is very necessary to learn RPA in financial big data analysis, to master platform operations, to collect data, to analyze data for single items and comprehensively, to need teacher guidance, to use new form textbooks, and the textbook form focuses on project-based, digital, and then modular.

4. Content Framework Design

The new form textbook of financial big data analysis based on RPA, the part of financial big data analysis based on RPA, specifically involves the content of RPA, big data, and financial analysis; the new form textbook part, including project-based, digital, modular textbooks, and other forms, covers the construction of teaching outlines, courseware, as well as knowledge point systems, ideas, and other resource constructions.

The specific design idea is, on the basis of existing textbooks and research, to reasonably arrange module tasks, first to carry out related cognitive research on RPA, big data, and financial reports; then to summarize the basic operations of using RPA for financial big data collection and organization; then to realize the specific operations of the selected RPA platform for different financial analysis fields such as solvency, operation, profitability, and development capabilities, forming code modules; finally, to achieve comprehensive capability analysis and further form analysis reports. During the implementation process, save the generated source code documents and lay the foundation for operation videos, and choose appropriate online resources.

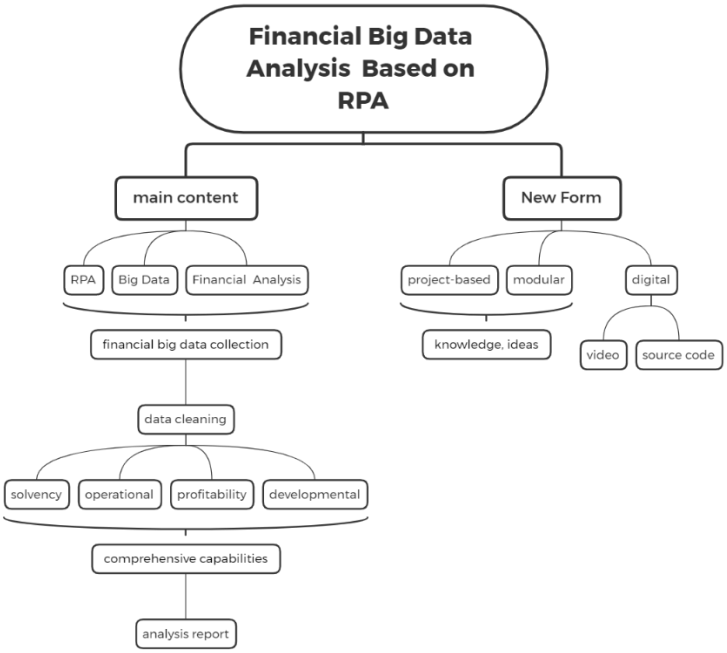

Fig. 1. Content Framework.

The content mentioned above is broken down step by step to obtain the content framework, as shown in Figure 1.

he implementation of the framework unfolds along two paths: one for the main content of financial big data analysis based on RPA and the other for the form of the new type of teaching material.

The section on financial big data analysis based on RPA specifically involves the content of three aspects: RPA, big data, and financial analysis. Initially, relevant cognitive research is conducted on RPA, big data, and financial reporting to clarify their concepts, content, and main methods, and to reasonably select relevant tools and define the specific scope of research. Subsequently, on the selected RPA platform, the basic operations of financial big data collection and organization are studied and implemented. Based on this, different financial analysis areas such as solvency, operational capability, profitability, and developmental capabilities of relevant cases are addressed, and specific operations on the chosen RPA platform are implemented to form code modules. Finally, an analysis of comprehensive capabilities is achieved and an analysis report is further developed.

The part on the form of the new type of teaching material includes the organization and review of existing research, research and examination of various forms of teaching materials such as project-based, digital, and modular, covering the construction of teaching outlines, courseware, as well as knowledge systems, ideas, and other resources, ultimately forming a complete system.

5. Results and Value

This study, based on RPA technology, forms a new form of textbook framework plan for "Financial Big Data Analysis," helping ordinary finance and accounting personnel to achieve RPA code-free development and comprehensive intelligent financial analysis with only a small amount of learning.

The new form of textbook has adaptability and popularity, which can effectively improve the teaching quality and enhance students' skills in financial big data analysis, helping to cultivate future financial big data analysts.

The new form of textbook has a wide range of sustainable impact, which can promote the development of education model innovation, teaching content renewal, teaching efficiency improvement, practical ability cultivation, and industry development.

The new form of textbook has a high value in promotion and application. By integrating cutting-edge technology with teaching content, practice-oriented teaching methods, interdisciplinary integration, and online and offline combined teaching models, it can provide references and references for the compilation of textbooks in other fields. At the same time, the promotion and application of this textbook will also make a positive contribution to the cultivation of compound talents and the promotion of industry development.

6. Conclusion and Outlook

This study proposes a new form of textbook construction framework path for "Financial Big Data Analysis" based on RPA and provides specific implementation plans. It helps ordinary finance and accounting personnel to achieve RPA code-free development and comprehensive intelligent financial analysis with only a small amount of learning.

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With the continuous development of RPA technology, its functions and application scope will be further expanded. Future research can explore more application scenarios of RPA in financial big data analysis, such as more complex financial process automation, more advanced data analysis and prediction, etc. At the same time, the integration of RPA with other technologies will also become a hot spot for research, such as artificial intelligence, machine learning, blockchain, etc. The combination of these technologies will bring greater innovation and development space for financial big data analysis.

Acknowledgment

This research achievement is supported by the Shanghai High-level University Construction Fund, the High-level Talent Startup Fund Project of Shanghai Publishing and Printing College (Y0E-0203-23-18-02y), the 2023 Professional Teaching Resource Library Course Construction Project (Y1A-0301-23-04-01y), and The Special Project on Ideological and Political Theory Courses and Curriculum-based Ideological and the Political Education of Shanghai University of Medicine & Health Sciences in 2024. The corresponding author is Zhuojing FU.

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