

Research on the construction of the financial and accounting undergraduate talent training system driven by RPA

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Abstract: This paper aims to explore how to construct an efficient undergraduate training system for financial and accounting talents under the impetus of Robotic Process Automation (RPA) technology. The article first analyzes the challenges faced by current financial and accounting education and the development trends of RPA technology. It then proposes a set of RPA-based reforms for financial and accounting education. Through theoretical research and empirical analysis, this paper aims to provide a practical model for higher education institutions to reform undergraduate education in financial and accounting disciplines.

1. Introduction

With the rapid development of technology, especially the widespread application of Robotic Process Automation (RPA) technology in the fields of finance and accounting, new requirements are posed for the training system of undergraduate talents in financial and accounting disciplines. This research aims to explore how RPA technology can be effectively integrated into the existing financial and accounting education system to cultivate professionals adapted to the demands of the digital era. By analyzing the existing issues in the current education system and the opportunities and challenges brought by RPA technology, this paper proposes an innovative educational model designed to enhance students' practical skills and future employability.

2. Current Challenges in Financial and Accounting Education and Opportunities of RPA Technology

2.1. Current Status of Financial and Accounting Education

The current financial and accounting education system is facing unprecedented challenges. Firstly, the traditional educational model primarily focuses on imparting theoretical knowledge, while being relatively weak in cultivating practical financial and accounting skills. This educational approach has failed to effectively integrate modern financial and accounting practices, resulting in graduates often lacking the ability to address complex financial issues in real-world work settings. For instance, students may be familiar with accounting principles and standards but may struggle when applying

these principles to financial analysis and decision-making in practical scenarios.

Moreover, with the advent of the digital era, the financial and accounting industry is undergoing rapid transformation, with emerging technologies such as big data, cloud computing, artificial intelligence, and blockchain redefining the boundaries of accounting functions. However, the current financial and accounting education system has been slow to incorporate these technologies into its curriculum. This lag not only limits students' understanding and application of new technologies but also diminishes their competitiveness in the modernized financial and accounting environment.[1]

In response to these challenges, educators and curriculum designers need to reconsider the direction and content of financial and accounting education. It is essential to incorporate more practical elements into the curriculum, such as case studies, simulated exercises, and internship programs, to enhance students' practical skills. Simultaneously, the curriculum should include introductions to and applications of emerging technologies to help students understand how these technologies impact the field of finance and accounting, as well as how to leverage them in their future careers. Only through these measures can financial and accounting education truly meet the demands of the digital era and produce accounting professionals capable of adapting to rapidly changing environments.

2.2. Development of RPA Technology

Robotic Process Automation (RPA) technology, as one of the most influential digital tools today, is reshaping the way work is done in the financial and accounting industry. RPA is an advanced technology that simulates highly interactive tasks performed by human users across applications. It primarily involves configuring software "robots" to automate a series of standardized business processes. These software robots can capture and interpret data from existing applications, process transactions, manipulate data, and effectively communicate with other digital systems.

In the field of finance and accounting, RPA technology's application is particularly prominent. It can automate many routine and highly repetitive tasks, such as data entry, account reconciliation, report generation, and financial compliance checks. By automating these processes, RPA significantly improves work efficiency, reduces human errors, and greatly shortens task completion times. This is especially evident in areas like financial closing cycles, tax filings, and financial audits, where precision and efficiency are crucial.

More importantly, the application of RPA liberates the time and energy of accounting professionals, enabling them to focus more on value-added tasks such as strategic planning, data analysis, and business decision support. This shift not only elevates the strategic position of accounting functions but also provides new career development paths for accounting professionals. With the continuous maturity and widespread adoption of RPA technology, its prospects in the field of accounting are expected to further drive the automation and intelligence development of accounting work.[2]

However, the widespread application of RPA also brings challenges to financial and accounting education and professional training. Accounting professionals not only need to master traditional accounting knowledge and skills but also understand and apply emerging technologies such as RPA. This requires corresponding adjustments and updates to the financial and accounting education system to meet the industry's new demands.

2.3. Educational Opportunities with the Integration of RPA

Integrating RPA technology into the existing financial and accounting education system presents revolutionary opportunities for improvement and innovation in traditional educational models.

Firstly, the introduction of RPA technology education helps enhance students' in-depth understanding of modern accounting workflows. By learning the basic principles and practical

applications of RPA technology, students can better adapt to a technology-driven financial environment, improving their adaptability and innovative thinking. For example, students can learn how to use RPA to automate standard financial processes, thereby enhancing efficiency and accuracy.

Secondly, incorporating actual RPA projects into the teaching process can greatly enhance the practicality and application value of education. By engaging in the design, deployment, and management of actual RPA solutions, students can apply theoretical knowledge to practice and learn how to solve problems in real business environments. This practice-oriented teaching approach enables students to better understand the practical application scenarios of RPA technology and enhances their ability to solve complex financial issues.

Lastly, the integration of RPA technology not only enhances the foresight and practicality of financial and accounting education but also opens up new career development paths for students. In today's environment, where digitization and automation are increasingly becoming industry standards, mastering RPA technology makes students more competitive in the future job market. Furthermore, a deep understanding of RPA technology provides students with the possibility to transition beyond traditional accounting roles towards technology and management aspects.

In summary, the combination of RPA technology and financial and accounting education not only enhances students' technical capabilities and market adaptability but also contributes to cultivating accounting professionals that meet the demands of the future market.[3]

3. Construction of Undergraduate Financial and Accounting Talent Training System Based on RPA

3.1. Curriculum Design

In the undergraduate financial and accounting talent training system based on RPA technology, curriculum design plays a crucial role. Firstly, the curriculum should encompass the foundational knowledge and principles of RPA, covering not only the working principles and basic concepts of process automation but also the operational skills and best practices of RPA software. For instance, students should be taught how to use specific RPA tools for recording and deploying simple processes and how to monitor and optimize running RPA processes.

Secondly, curriculum design needs to integrate RPA technology with traditional financial and accounting knowledge. This involves applying RPA to areas such as financial report automation, tax processing, and audit processes. Through this integration, students can learn how to use RPA technology to enhance the efficiency and accuracy of financial and accounting tasks. For example, students can learn how to automate the collection and organization of financial data or automate routine tax calculation and reporting processes.

In addition to theoretical teaching, the curriculum should include rich case studies and practical projects. Case studies can be selected from real-world scenarios, showcasing the application of RPA in different financial and accounting contexts, such as using RPA for financial fraud detection or improving audit efficiency. Practical projects should encourage hands-on experience, allowing students to design and implement their own RPA solutions to address specific financial and accounting issues. These projects not only enhance students' practical skills but also deepen their understanding of the application of RPA technology in the financial and accounting field.[4-5]

Lastly, curriculum design should emphasize interdisciplinary integration. This means that, in addition to financial and accounting knowledge and RPA technology, the curriculum should also include knowledge from related fields such as information technology, data analysis, and business process management. This interdisciplinary integration helps students build a more comprehensive knowledge framework, extending beyond understanding how RPA technology is applied in accounting to understanding how this technology integrates with other technologies and business

processes in a broader business environment.

In conclusion, the curriculum for undergraduate financial and accounting talent training based on RPA should be comprehensive, diverse, and possess both depth and breadth. It should meet students' demands for traditional financial and accounting knowledge while also satisfying their interest in learning emerging technologies and meeting future career development needs. Through such curriculum design, a versatile talent pool can be cultivated, proficient in both financial and accounting domains and RPA technology.

3.2. Teaching Methods and Tools

To maximize the effectiveness of RPA in education, diverse teaching methods and tools are crucial. These methods and tools should aim to increase student engagement, strengthen practical application skills, and enhance a profound understanding of RPA technology.

Firstly, the flipped classroom model is an effective teaching strategy, allowing students to independently learn basic theory through online courses before class. This approach enables more class time for in-depth exploration, interactive discussions, and practical exercises. In the classroom, teachers can guide students in analyzing specific cases, discussing RPA application scenarios, and engaging in hands-on exercises. This interaction not only deepens students' understanding of theoretical knowledge but also improves their ability to solve practical problems.

Secondly, the use of simulation software and cloud platforms is equally important in RPA teaching. By providing a virtual practice environment, students can try different RPA processes and strategies without worrying about causing actual losses. This practice helps students become familiar with the operation of RPA tools in a safe environment, mastering the design and management of complex processes. Simulation software can also be used to simulate real-world accounting scenarios, such as financial report generation and audit processes, providing a more practical and challenging learning experience.

Moreover, inviting industry experts for lectures or workshops is another effective teaching method. These experts can share their experiences in using RPA technology in actual work, discuss industry trends, and showcase the latest RPA tools and technologies. This direct interaction with industry experts not only broadens students' perspectives but also helps them develop a profound understanding of the practical application of RPA in the industry.[6]

Finally, encouraging student participation in actual RPA projects, especially collaborative internship projects with companies, is crucial for enhancing their practical skills. By participating in real business projects, students can not only apply knowledge learned in the classroom to actual work but also gain valuable work experience. These projects can involve specific tasks provided by companies, such as optimizing specific financial processes, or students independently developing RPA applications in a real business environment. Such experiences not only improve students' professional skills but also enhance their competitiveness in the job market.

In summary, by adopting these diverse teaching methods and tools, the teaching effectiveness of RPA in financial and accounting education can be significantly enhanced. These teaching strategies not only improve students' technical capabilities but also lay a solid foundation for their future careers.

3.3. Practice and Case Studies

Practice and case studies play a crucial role in RPA-based financial and accounting education. These methods not only deepen students' understanding of RPA technology but also enhance their ability to apply theory to real-world situations.

Firstly, the education curriculum should include multiple successful RPA application case studies relevant to the finance and accounting field. These cases can cover the application of RPA in various

financial tasks, such as account reconciliation, financial report generation, budget analysis, and more. Through these case studies, students can gain an in-depth understanding of how RPA operates in real work settings and the efficiency and accuracy improvements it brings. For example, a case study might demonstrate how to use RPA to automate account reconciliation processes, reducing human errors and accelerating audit processes. These practical cases not only inform students about the real-world application of RPA but also inspire them to think innovatively about how to apply these technologies in their future work.

Secondly, encouraging student involvement in simulation projects is crucial for enhancing their practical skills. These projects can be designed as team tasks, requiring students to collaboratively design and implement an automated financial report processing system or other RPA applications related to finance and accounting. This practical activity helps students integrate theoretical knowledge learned in class with practical application, improving their problem-solving and teamwork skills. Additionally, such projects provide a platform for students to test and refine their RPA solutions in a real environment.

Furthermore, providing opportunities for students to participate in actual RPA projects through collaboration with companies, such as internships, project consultations, or corporate project partnerships, is key to enhancing students' practical work skills. In these real projects, students can apply the knowledge they have learned to real business environments and gain valuable professional experience and industry insights. For instance, students can participate in a company's financial process optimization project, using RPA technology to improve financial processing efficiency.

Finally, continuous feedback and assessment of these practical activities are crucial for optimizing teaching methods and curriculum content. By evaluating student performance in practical projects, teachers can understand the effectiveness of the curriculum and the progress of student learning. Feedback can take the form of regular course evaluations, self-assessments by students, and evaluations by industry mentors. This feedback not only helps teachers improve teaching strategies but also assists students in better understanding their strengths and areas for improvement.

In conclusion, by adopting these practical activities and case study methods, the quality of undergraduate financial and accounting talent training based on RPA can be significantly improved. These methods ensure that students can effectively master RPA technology and apply it in their future careers.

4. Empirical Research and Analysis

4.1. Research Methodology

This study adopts a comprehensive research methodology that combines both quantitative and qualitative approaches to comprehensively assess the application effectiveness of RPA technology in financial and accounting education. In terms of quantitative research, the primary tool used is a questionnaire survey designed to quantitatively assess the impact of RPA education on students' learning outcomes through data analysis. The questionnaire design covers various aspects, including students' levels of knowledge mastery before and after taking RPA courses, the degree of skill improvement, and overall satisfaction with the course. These questionnaires, crafted with precision, aim to capture specific feedback from students regarding the RPA education model and changes in their learning outcomes.

In qualitative research, a semi-structured interview approach is employed, involving teachers, students, and industry experts as interviewees. This interview method aims to collect deeper insights, exploring participants' views, personal experiences, and specific suggestions regarding the RPA education model. Through these interviews, the research seeks to gain a deeper understanding of the practical application of RPA technology in financial and accounting education and how it influences

education quality and student learning experiences. Additionally, interviews provide an opportunity to gather insights from industry experts regarding future trends in RPA technology and educational needs.

By combining these two research methods, this study can comprehensively evaluate the application effectiveness of RPA in financial and accounting education from different dimensions. It considers both quantitative learning outcomes and qualitative experiences and profound impacts during the educational process. This integrated research methodology contributes to a more accurate and comprehensive understanding of the practical application effectiveness of RPA technology in financial and accounting education, providing scientific guidance and recommendations for future teaching methods and curriculum design.

4.2. Data Analysis

The research data analysis conducted on the impact of RPA-related courses reveals some significant results. The data indicates that, after completing RPA-related courses, students have achieved a notable improvement in knowledge and skills in the financial and accounting domain. This improvement is manifested in several areas: firstly, students have enhanced capabilities in automating accounting processes; secondly, there is a significant improvement in their data analysis skills; and finally, students have experienced a substantial growth in skills related to practical operations, such as using RPA tools for financial report generation.

The results of the questionnaire survey further validate these findings. The majority of students participating in the survey expressed that RPA courses effectively increased their understanding of automated accounting tasks and believed that it positively impacts their future careers. Students generally feel that through RPA courses, they are better prepared to adapt to the increasing trends of automation and technological advancements in future financial and accounting work.

Feedback provided by teachers and industry experts through semi-structured interviews also supports these conclusions. They generally believe that the introduction of RPA technology not only enhances the practicality and hands-on nature of the courses but also increases the forward-looking nature of the course content. Experts emphasize that the teaching of RPA technology enables students to more effectively cope with the rapidly changing financial and accounting environment, making them more competitive in the future job market.

In summary, the research data clearly indicates that RPA-related courses have a significant positive impact on improving students' knowledge and skills in the financial and accounting domain. These findings provide strong support and evidence for the further integration and application of RPA technology in financial and accounting education.

4.3. Discussion

The results of the data analysis in this study clearly indicate that integrating RPA technology into financial and accounting education can significantly enhance teaching effectiveness and greatly improve students' professional skills. This finding holds profound implications for the reform and development of the current financial and accounting education system.

Firstly, the research results emphasize the importance of integrating practical technological applications with traditional accounting courses. This integration not only enhances students' practical operational skills but, more importantly, increases students' awareness of future trends in the accounting profession. This implies that students not only acquire traditional accounting knowledge but also gain the ability to understand and apply emerging technologies, which is crucial for adapting to the continuously evolving accounting industry.

Secondly, this study highlights the necessity for continuous updates to educational content to keep

pace with the rapid development of technology. As the accounting field increasingly relies on technological solutions, the education system must adapt to these changes to ensure that students' skills and knowledge align with industry demands. This updating process involves not only the content of teaching but also teaching methods and tools, ensuring that students can effectively apply learned knowledge in practical work.

Lastly, the research results provide clear recommendations to educators and decision-makers, emphasizing the importance of incorporating practicality and technological integration into teaching methods. This integrated teaching approach contributes to improving the overall quality and effectiveness of financial and accounting education, better preparing students to face future professional challenges. In summary, the integration of RPA technology offers an innovative teaching path for financial and accounting education, playing a critical role in cultivating accounting professionals who can adapt to future market demands.

5. Conclusion

This study comprehensively explores the training system for undergraduate talents in financial and accounting driven by Robotic Process Automation (RPA) and proposes a novel educational model that combines theory with practice, emphasizing technological applications. The research findings indicate that the integration of RPA technology effectively enhances students' understanding and operational capabilities in financial and accounting practices, providing educators with new teaching approaches and methods. Despite facing certain implementation challenges, this educational model holds significant importance in cultivating accounting professionals aligned with future market demands. Future research can further explore effective implementation strategies for this model in diverse educational environments.

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