

Using the BOPPPS Teaching Model to Reform the Intelligent Accounting Courses in the Digital Age

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Abstract: With the advent of the Belt and Road initiative and the digital age, cultivating intelligent accounting talents who have global vision and digital skills has become an important goal of accounting majors in universities. This paper analyses the impact of the Belt and Road Initiative and digital technology on accounting education and summarizes the problems existing in the current accounting courses, including the disconnection between the course content and the practical needs, and the relatively backward teaching mode. In addition, this paper shows how to use the BOPPPS teaching model to carry out the teaching and learning of intelligent accounting courses. This paper has enlightening significance for improvement of accounting courses under the background of the Belt and Road Initiative, also promotes the transformational development of accounting majors.

Keywords: Intelligent Accounting Courses; BOPPPS Teaching Model; Belt and Road Initiative

1. The Impact of the BRI and Digital Technology on Accounting Education

Since 2013, the Belt and Road Initiative (BRI) has promoted the infrastructure construction, trade facilitation, financial integration, and people-to-people exchanges among the participating countries, creating new opportunities for economic growth and regional cooperation [1]. Under the framework of the BRI, the Chinese government has proposed the Digital Silk Road, which promotes the construction of smart cities by jointly building information infrastructure and sharing information technology with relevant countries and regions [2-3]. For example, digital transactions can reduce transaction costs and make cross-border trade smoother.

The BRI has enhanced China's role and responsibility in the international community, as well as its relations with other major powers and regional organizations.

The development of the BRI and digital technology also poses some new requirements and challenges for the cultivation of accounting talents. Some studies suggest that the BRI has had an impact on the accounting conservatism of enterprises [4], which needs to draw the attention of accounting professionals. Specifically, accounting talents should have a global vision and a cross-cultural awareness. The BRI involves more than 140 countries and regions across Asia, Europe, Africa and Latin America, which requires accounting talents to be familiar with the international accounting standards, laws and regulations, as well as the economic and cultural backgrounds of different countries and regions. Accounting talents should also be able to communicate effectively with diverse stakeholders and partners in different languages and contexts.

Second, accounting talents should have a strong digital literacy and innovation ability. The BRI promotes the digitalization of infrastructure, trade, finance, industry and other fields, which requires accounting talents to master the latest digital technologies such as artificial intelligence, cloud computing, big data, blockchain, etc., and apply them to accounting practices. Accounting talents should also be able to analyse and process massive and complex data, generate valuable insights and solutions, and create new business models and value propositions.

Third, accounting talents should have a high sense of social responsibility and ethical standards. The BRI aims to achieve high-quality development that is sustainable, inclusive and beneficial to people's livelihood, which requires accounting talents to uphold the principles of openness, transparency, fairness and justice in their work. Accounting talents

should also be aware of the potential risks and challenges of digitalization, such as data security, privacy protection, cybercrime, etc., and adhere to the professional ethics and codes of conduct.

Therefore, to cope with the challenges and opportunities brought by the BRI and digital technology, accounting education needs to reform its courses to cultivate accounting professionals. It is necessary for universities to introduce intelligent accounting courses and integrate modern business practices and digital information technology into professional courses.

2. The Problems of the Accounting Courses

However, many universities' accounting courses are outdated and face several problems that affect the quality and relevance of accounting education. Moreover, the traditional teaching methods used in these courses are not effective in preparing students for the demands of modern accounting practices.

One of the problems is the gap between the academic content and the practical needs of the profession. The accounting courses often lack the application and teaching of emerging technologies that are transforming the accounting industry and creating new opportunities and challenges for accountants. For example, cloud computing enables accountants to access and process data from anywhere and anytime, but also raises issues of data security and privacy. Blockchain allows accountants to verify transactions and records without intermediaries, but also requires them to understand the underlying principles and implications of this technology. These topics are not adequately covered or integrated in the accounting courses, which limits the students' exposure and understanding of the current and future trends in accounting.

Another problem is that accounting curriculum is too focused on theoretical knowledge and lacks practicality and innovation. The accounting curriculum often relies on textbook-based learning and standardized exams, which do not reflect the complexity and dynamism of real-world situations. The curriculum does not cultivate students' critical thinking and analytical skills, which are essential for accountants to deal with uncertain and ambiguous scenarios in the business world.

Moreover, the curriculum does not encourage students to explore new ideas and solutions, or to apply their knowledge creatively to solve problems. The curriculum does not foster a culture of innovation and entrepreneurship among accounting students, which hinders their ability to adapt and thrive in a changing environment.

A third problem is that the accounting curriculum also lacks effective teaching modes and assessment mechanisms that can reflect the quality and relevance of accounting education. The curriculum relies too much on traditional teaching methods, such as lectures and exams, which are often passive and boring for students. The curriculum also uses standardized exams as the main form of assessment, which are often stressful for students [5]. The curriculum does not use more innovative teaching methods, such as flipped classroom, simulations, or online courses, which can make learning more fun and meaningful for students. In other words, the accounting curriculum does not fully utilize information technology and online resources to form effective teaching modes and assessment mechanisms [6].

Therefore, the accounting curriculum needs to be revised and updated to address these problems, and to align with the evolving demands and expectations of the accounting profession.

3. Solutions for Accounting Courses Reform

To address these problems, some possible solutions can be proposed. First, universities can introduce intelligent accounting courses that incorporate modern business practices and digital information technology into professional courses. Emerging technologies can be integrated into the accounting curriculum and taught in a hands-on and interactive way. For example, cloud-based accounting software, such as QuickBooks or Xero, can be used to teach students how to record and process accounting data online, and also discuss the benefits and risks of cloud computing for accountants. Blockchain technology and its applications in accounting, such as smart contracts, audit trails, and digital currencies, can also be introduced and let students experiment with blockchain platforms, such as Ethereum or Hyperledger, to

understand how they work and what they can do for accountants.

Additionally, problem-based learning and project-based assessment can be adopted instead of textbook-based learning and standardized exams. For example, real-world accounting cases and problems, such as fraud detection, tax planning, or business valuation, can be presented to students and ask them to analyse and solve them using their theoretical knowledge and analytical skills. Group projects, such as designing a new accounting system, developing a new accounting service, or creating a new accounting product, can also be assigned to students and ask them to present their ideas and solutions to their peers and experts. These methods would encourage students to think critically and creatively, and to apply their knowledge in novel ways.

Furthermore, more innovative teaching methods, such as flipped classroom, simulations, or online courses, and more diverse forms of assessment, such as portfolios, peer reviews, or feedback surveys, can be used [7-8]. For example, flipped classroom can be used to let students watch online lectures before class and engage in discussions and activities in class. Simulations can be used to let students experience realistic accounting scenarios and situations, such as auditing a company's financial statements, preparing a budget report, or negotiating with a client. Online courses can be offered to let students learn at their own pace and convenience. For assessment, portfolios can be used to let students showcase their learning outcomes and achievements throughout the course. Peer reviews can be used to let students evaluate each other's work and provide constructive feedback. Feedback surveys are useful in collecting students' opinions and suggestions on the course content, design, delivery, and evaluation. These methods would make learning more engaging and meaningful for students. By implementing these solutions, universities can ensure that their accounting courses are relevant and comprehensive, and that students are well-prepared for the demands of the modern business world.

4. The Reform Design of Accounting Curriculum

4.1 The Integration of the Belt and Road Initiative in Course Content

The development of the BRI has important implications and inspirations for accounting education because accounting is the foundation of business activities, as well as the bridge of cross-border cooperation. Therefore, the course instructors pay special attention to mining relevant cases of the BRI and integrating them with intelligent accounting knowledge to achieve the goal of business-finance integration. Some countries or regions along the Belt and Road route, such as Singapore, Malaysia, and the United Arab Emirates, have largely achieved convergence of their accounting standards with the International Financial Reporting Standards (IFRS), which facilitates cross-border financial reporting and cooperation. In the courses related to financial reporting standards, IFRS should be compared with the local accounting standards, and encourage students to discuss the benefits and challenges of accounting convergence for the Belt and Road countries.

The course instructors can design some teaching activities related to the BRI, such as case analysis, project research, simulation training, etc., to let students apply the accounting theories and methods they have learned to solve some practical and challenging problems. For example, many cases can be integrated into course content of Environmental accounting. To be specific, BYD, a Chinese company that specializes in new energy vehicles, has registered a joint venture with Uzbekistan Automotive Industry Company in Uzbekistan. This partnership opens up a new market for BYD's electric and hybrid vehicles in Uzbekistan. BYD is known for its innovative spirit and its mastery of core technologies such as batteries, motors, and electric control. The company provides comprehensive solutions for new energy, including electric vehicles and power batteries. This helps to promote the digitalization and low-carbon development of the local area and contributes to the local economic and social development. The environmental impact and responsibility under the BRI should be discussed, which involve assessing the potential positive and negative effects of BRI-related projects on the local environment and climate, and developing mitigation measures and monitoring mechanisms.

Apart from the business case analysis, the course instructors can also introduce some emerging fields and frontier topics related to the BRI, to let students expand their knowledge horizons and stimulate their innovative thinking. For example, students can explore how to use digital technology, artificial intelligence, big data and other emerging technologies to improve the efficiency and security of accounting information systems; or students can study how to use environmental, social and governance (ESG) and other emerging concepts to improve the transparency and accountability of accounting information disclosure. This can expand students' knowledge domains and innovative thinking, and improve their ability to cope with the changing accounting environment and needs.

4.2 The Application of BOPPPS in Course Reform Design

To improve the course effectiveness, the course instructors can adopt the BOPPPS teaching model, which consists of six parts: Bridge-In, Objectives, Pre-Assessment, Participatory Learning, Post-Assessment and Summary [9]. The BOPPPS teaching model is a learner-centered, objective-oriented, process-focused and feedback-based teaching model.

Table 1. Teaching Process Design of BOPPPS

Teaching Guidance	Integration of Business and Accounting, Cultivation of Virtue and Talent
Bridge-In	Creating Scenarios (Business Cases)
Objectives	Introducing Knowledge Objectives and Ideological and Political Objectives
Pre-Assessment	Pre-Class Quizzes
Participatory Learning	Implementing Blended Teaching Through the Use of Smart Teaching Platforms
Post-Assessment	Conducting Open Discussions and Tests on Smart Teaching Platforms
Summary	Sharing Knowledge Maps

As shown in Table1, the following is the teaching design of the Yabite financial fraud case in the Big Data Financial Analysis course using the BOPPPS teaching model. In the Bridge-In stage, the instructor first uploads a

news video about the Yabite financial fraud case to the smart teaching platform to attract students' interest. To stimulate their awareness of the importance of financial analysis, the instructor poses some open-minded questions and assigns students to different learning groups to prepare for the subsequent offline learning. Students are required to collect and analyse information according to their assigned questions and prepare a short report for class presentation.

In the second stage, the instructor clarifies the knowledge objectives and ideological and political objectives of this course. For one thing, students are required to master the basic concepts, methods and skills of financial analysis, and to be able to use financial indicators analysis, ratio analysis, quality analysis and other tools to effectively evaluate the financial condition, operating results, debt repayment ability, profitability and other aspects of listed companies. Most importantly, they could discover and identify the signs and risks of financial fraud. And for another, students should realize that as future accounting practitioners, they should abide by professional ethics and laws and regulations, and not participate in financial fraud. Otherwise, they will face legal liability and professional ethics condemnation. In addition, financial fraud will also cause great damage to the company's reputation and credibility and may even lead to bankruptcy. Therefore, accounting practitioners should always be vigilant, constantly improve their own quality and professional skills, and better fulfil their responsibilities.

In the Pre-Assessment stage, the instructor conducts a pre-class assessment of students' basic knowledge and abilities in financial static analysis and trend analysis through some multiple-choice questions. By finding out the degree of students' mastering of basic knowledge, it provides a basis for subsequent teaching arrangements and adjustments.

The fourth stage is Participatory Learning. In the offline classroom, instructors and students can interact in various ways. The instructor first introduces the basic concepts, purposes and methods of financial static analysis and trend analysis. Then the instructor explains the indicators of profitability, operating capability, debt-paying ability and growth ability of enterprises, conducts ratio calculation, and

points out the drawbacks of this method. Subsequently, each learning group displays their financial analysis reports about Yabite. Each group should apply the financial analysis tools to interpret the financial data of Yabite and expose the fraudulent actions of Yabite such as falsifying sales business, inflating revenue and profits and misreporting inventory, which inflicted serious harm to the corporate credibility and investor interests.

In the post-test stage, each group is required to choose a company that is suspected of having financial fraud. Then they should apply the financial ratio and other analysis methods to assess its debt-paying ability or profitability and dissect the company's fraud ways and motives. The group learning report will be uploaded to the smart teaching platform and then reviewed by other groups and instructors. This way of learning will examine whether the students have reached the expected learning objectives, and identify and resolve the issues and challenges that students face in financial static analysis and trend analysis.

In the summary stage, the instructor provides feedback on the good and lacking aspects of each learning group in the case analysis and offers suggestions for improvement. In summarizing and inducing the knowledge points, the instructor will create a knowledge map to share with the students and encourage each group to innovate the design of the knowledge map.

This is the design of applying the BOPPPS teaching model into the course content of financial static analysis and trend analysis. The course of Big Data Financial Analysis not only includes financial static analysis and trend analysis, but also includes financial peer comparison analysis, decision tree model, financial fraud model construction and so on. During the teaching process, the instructor can apply the BOPPPS teaching model to redesign the Yabite financial fraud case according to the different focuses of the course content.

5. Suggestions for the Development of Intelligent Accounting Courses

The above teaching design demonstrates the practicality of the BOPPPS teaching model in accounting curriculum teaching. In future intelligent accounting curriculum teaching, more attention should be paid to the application of the BOPPPS teaching model and

digital technology. This reform uses practical enterprise cases that are related to BRI to enrich the course content and utilizes the smart teaching platform to improve the course efficiency and effectiveness.

5.1 Using the BOPPPS Teaching Model to Enhance Intelligent Accounting Courses

The BOPPPS teaching model provides instructors with teaching ideas and methods that can help standardize teaching paradigms for the construction of intelligent financial accounting courses [10]. By using this teaching model, instructors can optimize their teaching content, effectively introduce teaching cases, clarify teaching objectives, and enhance students' learning enthusiasm and outcomes. This approach helps instructors improve their teaching methods and provides students with a more comprehensive and relevant education that prepares them for the challenges of the modern business world.

5.2 Using the Digital Technology to Improve Intelligent Accounting Courses

Digital technology has extended teaching from online to offline. As seen in the above teaching design, smart teaching platforms not only help deliver actual enterprise cases but also assist instructors in recording and monitoring quantitative data during the teaching process. This helps optimize extended offline activities. Additionally, digital technology can enrich teaching resources. The construction of intelligent accounting courses will eventually transform teaching resources into convenient digital products for sharing, including micro-courses, enterprise cases, and exercise banks. Digital technology can also optimize teaching modes. For example, virtual simulation technology can help students better understand abstract concepts. Course instructors have tried more diversified teaching methods such as smart classrooms, virtual simulations, and enterprise practice, which greatly expand the depth and breadth of teaching.

6. Conclusion

The advent of the digital era has changed the process of business transactions and posed new challenges to the knowledge and abilities of accounting practitioners. Therefore, accounting education should also keep pace with the times, adapt to the needs of technological change, and

cultivate intelligent accounting talents with innovative spirit, professional quality, and practical ability. There are some problems existing in the current accounting courses, such as the disconnection between the course content and practical needs, as well as the relatively backward teaching mode. This paper demonstrates how to use the BOPPPS teaching model to carry out the teaching and learning of intelligent accounting courses. The courses need to incorporate more application and teaching of emerging technologies, such as cloud computing and blockchain, that are relevant and useful for accountants. The courses also need to enhance the practicality and innovation of accounting education by using more case-based learning, project-based learning, experiential learning, and collaborative learning methods. These methods can help students develop their critical thinking and analytical skills, as well as their creativity and initiative. By doing so, the intelligent accounting courses can better prepare students for their future careers as accountants in a dynamic and competitive world.

Acknowledgements

This paper is supported by the following projects: Education and Teaching Reform Project of Beijing Institute of Technology, Zhuhai Campus: Intelligent Accounting Core Courses Reform Plan Based on Knowledge Graph, Project Number: 2023008ZLGC; First-class Course Project of Beijing Institute of Technology, Zhuhai Campus: Introduction to Financial Accounting, Project Number: 2022001YLKC; Quality Engineering Project of Beijing Institute of Technology, Zhuhai Campus: Intelligent Financial Talent Experimental Teaching Demonstration Centre, Project Number: 2023006ZLGC.

References

- [1] Huang, Y. P. (2016). The Challenge of Different Perceptions on the Belt and Road Initiative. *China Economic Review*, 40, 314-321.
- [2] Ma, J. C. (2017). Understanding China's Belt & Road Initiative: Motivation, framework and assessment. *Croatian International Relations Review*, 23(78), 149-168.
- [3] Belova, I.N., Egorycheva, E.A, Semenovich, V.S, Notina, E.A, Ryabinina, I.A. (2019). Discussions on the Belt and Road Initiative: mutual benefits or loses. *Dilemas Contemporaneos-Education Politica Y Valores*, 7(1), 135.
- [4] Tingting L., Kai G. Sajid A. (2022). The Impact of the "Belt and Road" Initiative on Accounting Conservatism of Energy-Intensive Enterprises under the Low-Carbon Background. *Journal of Environmental and Public Health*, 2022, 1-15.
- [5] Khan, A., Madden, J.. (2018). Active learning: a new assessment model that boost confidence and learning while reducing test anxiety. *International Journal of Modern Education and Computer Science*, 10(12), 1-9
- [6] Lili, T.. (2019). Teaching reform of the mixed course of intermediate financial accounting based on the idea of double creation education. *Pioneering with Science & Technology Monthly*, 10, 148-150.
- [7] Wen, D.Y., Wu X.P. (2022). Influence of SPOC Classroom Teaching on E-Learning. *International Journal of Emerging Technologies in Learning*, 17(12), 16-28.
- [8] Liu D.J., Yu J.H., Guo S.Y.. (2019). Design and implementation of teaching process reengineering based on "mooc + flipped classroom" in the background of "internet +". *Education Modernization*. 6(82), 245-247.
- [9] Wu, C.D., He, X.Z., Jiang, H. (2022). Advanced and effective teaching design based on BOPPPS model. *International Journal of Continuing Engineering Education Ana Life-Long Learning*, 32(5), 650-661.
- [10] Zhang, G. E., Zuo, J., Huang, F., Li, L.. (2022). Teaching Design and Curriculum Reconstruction Based on BOPPPS Model in the Cultivation of Logistics Talents. *The International Conference on Artificial Intelligence and Logistics Engineering. Advances in Artificial Systems for Logistics Engineering*, 316-326.