



Research on the Application Path of Information Technology Empowering Talent Cultivation in Auditing

—A Case Study of Guangxi Vocational Normal University

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Abstract. The rapid development of information technology has brought about transformative changes in the auditing industry, posing new challenges for talent cultivation. Proficiency in utilizing information technology has become one of the core competencies for auditing students. This paper explores the application of information technology in the cultivation of auditing professionals, aiming to address the challenges faced by traditional teaching methods. By analyzing the current status and challenges of talent cultivation in auditing and leveraging the characteristics of information technology, a technical application framework based on virtual simulation, big data analytics, online learning platforms, and AI-assisted teaching is proposed. The study employs a combination of experimental design and case analysis to validate the significant improvement in students' practical skills and learning outcomes through the application of information technology. The research results provide theoretical foundations and practical guidance for the reform and innovation of talent cultivation in auditing.

Keywords: Information Technology, Auditing Major, Talent Cultivation; Virtual Simulation, Big Data Analysis, Artificial Intelligence

1 Introduction

The rapid development of information technology has driven profound changes in the auditing industry. The application of technologies such as big data, artificial intelligence, and block chain has not only altered auditing methods and processes but also imposed new skill and literacy requirements on auditors. The auditing industry's demand for information technology has quickly trickled down to the cultivation of auditing talent in higher education institutions. The traditional talent cultivation model for auditing majors can no longer meet the requirements of the digital age for auditing talent. The advent of information technology presents new opportunities and challenges for the training of auditing professionals. This study aims to explore the application pathways of information technology in the cultivation of auditing professionals. By analyzing the impact of information technology on the auditing industry and

the challenges faced in talent cultivation, the study investigates the specific application of information technology in the auditing curriculum, teaching methods, and practical teaching. It proposes an innovative scheme for the cultivation of auditing talent based on information technology. Meanwhile, through experimental design and case analysis, the study summarizes successful experiences, providing theoretical support and practical guidance to enhance teaching quality and cultivate auditing talent adapted to the digital era.

2 Literature Review

2.1 Application of Information Technology in the Training of Professional Talents

With the rapid development of information technologies such as big data and artificial intelligence, the application of informatization technology in education has achieved certain effects. Common applications include online learning platforms, virtual simulation, big data analysis, and artificial intelligence-assisted teaching. Xia M (2023) pointed out that in recent years, with the rapid development of information technologies such as big data, cloud computing, artificial intelligence, and machine learning, enterprise information management has entered the "post-ERP" era. Informatization of enterprises has become the mainstream of global economic and social development. There are challenges in the training of engineering talents in local colleges and universities in China, such as the difficulty of "integration of industry and education," the implementation difficulties of school-enterprise cooperation, and unclear professional standards^[1]. Dongqin W (2022) indicated that the curriculum system of vocational education must fully consider the use of new technologies to ensure the availability of the knowledge and ability structure. In order to improve the teaching quality of higher vocational education, this paper aims to deeply study the application of digital media technology in higher vocational education with the help of big data ^[2]. Wang Z, Lin Y (2020) pointed out that the development of artificial intelligence will not only have a significant impact on practitioners in the auditing industry but also have a revolutionary impact on the training of auditing talents in colleges and universities^[3].

2.2 Current Situation and Challenges in the Training of Auditing Professionals

The main challenges faced in the training of auditing professionals include outdated teaching content, insufficient practical teaching, backward information technology teaching methods, a lack of cutting-edge information technology courses, and a lack of students' innovative capabilities. Luo Aiqi et al. (2020) pointed out that currently, the application of block chain technology and artificial intelligence in auditing is becoming more widespread, yet the widely used auditing textbooks generally mention the use of cutting-edge information technology very little^[4]. Geng Hongying (2023) indicated that under the big data auditing model, intelligent auditing and auditing

information will be multi-dimensional big data, transitioning from sample auditing to detailed auditing. However, auditing education in colleges and universities still relies on classroom instruction led by teachers, with students passively participating. Teachers lack practical opportunities, and the evaluation criteria for students in colleges and universities still focus on theory, with insufficient construction of practice bases [5]. Zhang Fengyuan et al. (2024) noted that in the era of artificial intelligence, the application of intelligent technology has changed the way of work, workflow, and business models in auditing. However, the awareness of auditing talent training in colleges and universities is still stuck in the traditional stage, leading to a serious shortage of intelligent auditing talent supply in our country. As a place for talent training, it is crucial for colleges and universities to promptly supply the society with intelligent auditing talent that adapts to the development of the times [6]. Zhang Jianshun (2024) pointed out that big data auditing technology is currently in a period of rapid development, and the demand for big data auditing talent is rapidly increasing. However, the construction of big data auditing majors in colleges and universities significantly lags behind social needs, characterized by a small number of colleges and universities offering the major and the quality of those offerings being not high [7]. Facing the upgrade of the industrial chain and the application of artificial intelligence technology, the audit environment has undergone subversive changes. The traditional training model for audit talent can no longer meet the societal requirements for the quality of audit professionals. Currently, the curriculum and teaching content of the audit major are generally lagging behind the development of the audit industry. The practical teaching aspect is relatively weak, and graduates lack practical operation skills and innovative thinking abilities. Additionally, the information literacy of the teaching staff is low. These phenomena seriously restrict the quality of audit talent cultivation.

2.3 Research Gaps

Existing research pays little attention to the specific application of informatization technology in the education of auditing majors, including the use of information technology in the training of auditing professionals and the establishment of informatization courses in the auditing major curriculum. Currently, the application of information technology in the training of auditing professionals lacks a systematic framework and empirical research. Therefore, conducting research on the application of information technology in the training of auditing professionals is both feasible and necessary.

3 The Application Value of Informatization Technology in the Training of Auditing Professionals

The application of information technology in the cultivation of auditing professionals is a multi-level, multi-dimensional framework system, as illustrated in Figure 1: "Application Framework of Information Technology in Auditing Talent Development." By leveraging information technology to refine teaching content, improve teaching

methods, enrich practical teaching components, and enhance the evaluation system for both teaching and learning, a distinct ecosystem for auditing talent development is established, differing from traditional training models. The specific application values are as follows:

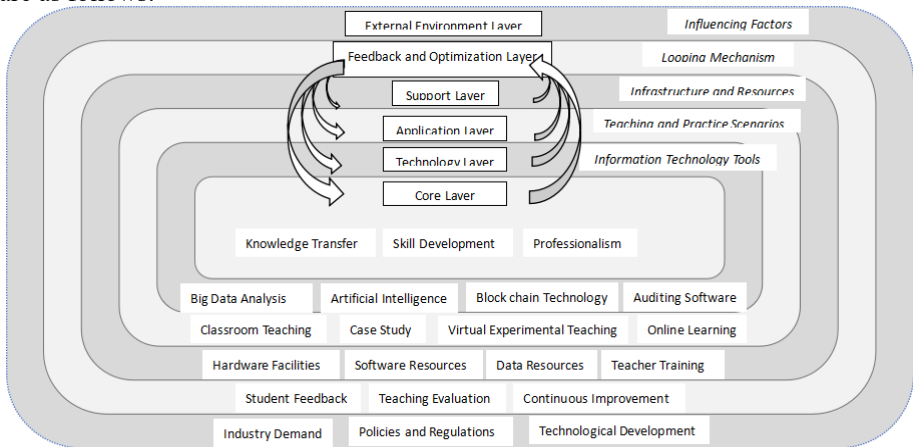


Fig. 1. Application Framework of Information Technology in the Training of Audit Professional Talents

3.1 Enriching Teaching Resources and Enhancing Teaching Efficiency

Traditional teaching methods are monotonous, primarily centered around classroom instruction by teachers, making it difficult to promptly understand the students' grasp of the knowledge. The interaction between teaching and learning is poor. Wang Yunwu et al. (2021) pointed out that during the 14th Five-Year Plan period, in the face of the main theme of innovation and transformation, there is an urgent need to accelerate educational reform through intelligent technologies and to expedite the exploration of new forms of future education such as smart education in the intelligent era, "short video + live streaming education", online and offline integrated education, and mobile online education^[8]. The application of informatization technology in teaching can integrate and share teaching resources. Through means such as virtual simulation and online courses, teachers and students can break through the limitations of time and space to engage in teaching and learning. Teachers can promptly understand students' learning situations through online information technology platforms and adjust teaching strategies accordingly; students can communicate with teachers in a timely manner through the teaching platform, improving the efficiency of teaching and learning. By utilizing online education platforms and remote teaching systems, a school-enterprise cooperation mechanism can be established, introducing real project demands from firms and technology companies, dynamically updating courses, breaking through regional limitations to share high-quality teaching resources, and ensuring that teaching content keeps pace with the development of industry technology.

3.2 Effective Integration of Theory and Practice to Enhance Practical Skills

Wang Xing et al. (2023) pointed out that the "Internet + Education" mega-platform can fully integrate various resources and teaching platforms, enabling effective sharing of online resources, high-quality faculty, educational big data, and information dividends. This innovation in resource allocation service models promotes the improvement of resource allocation governance levels [9]. Audit education also faces the issue of limited resources affecting teaching effectiveness. For example, traditional teaching methods struggle to address hands-on audit practice problems. By using information technology to simulate real audit environments, it is possible to present audit theory and practice more intuitively and vividly. This allows students to effectively engage in audit practice in virtual environments while learning audit theory, addressing the disconnect between theory and practice. Through audit simulation software and big data analysis tools, students can better understand and master audit theory in practice, enhancing their ability to solve practical problems and improving their hands-on skills.

3.3 Cultivate Innovative Capabilities to Adapt to Industry Development

Implementing the OBE (Outcome-Based Education) teaching philosophy, students are equipped in advance with the skills for designing automated audit processes by learning tools and technologies such as Robotic Process Automation (RPA), Python, Hadoop, Tableau, Power BI, etc., which enhances their independent analytical abilities and innovative thinking. By studying ERP systems and block chain technology, and building a private block chain to simulate smart contract auditing, students gain a better understanding of the transparency and immutability of distributed ledgers, as well as the sufficiency and appropriateness of audit evidence. This cultivates a real-time tracking mindset and a better understanding of the risk warning role of continuous auditing. By guiding students in learning tools like Nessus and Wireshark, their capabilities in network security auditing are improved. The study of information technology helps students to understand and adapt to industry trends, adjust to technological iterations earlier, and lays a solid foundation for their future careers.

4 The Application Path of Informatization Technology in the Training of Auditing Professionals

4.1 The Application of Informatization Technology in the Construction of the Curriculum System for the Auditing Major

Modern information technology is reshaping the audit industry, driving the transformation of auditing from "post-event inspection" to "real-time risk control." The cultivation of modern audit talent and the construction of audit compliance are particularly urgent. In the process of training audit talent, the design of the curriculum modules for the auditing major should be updated according to the industry's requirements for the literacy of audit professionals. It is necessary to design the theoretical, practical,

and information technology modules of the auditing major courses reasonably, integrate data analysis, information technology, and other content into the curriculum system, and highlight the interdisciplinary integration and forward-looking nature of future literacy in course design. This aims to cultivate students' abilities in knowledge acquisition, innovative thinking, and mastery of information technology related to auditing. Incorporating information technology into the curriculum system of the auditing major involves the following aspects: Firstly, integrating big data analysis technology into existing courses, allowing students to become familiar with various general big data analysis tools such as Hadoop, Power BI, IDEA, Team Mate, and SAP Continuous Auditing. This cultivates students' awareness of big data analysis and continuously improves the level of informationization in auditing courses through progressive curriculum reform. Secondly, independently offering audit informatization courses, such as "Audit Informatization" and "Big Data and Auditing." According to the professional aspects, students should be introduced to mainstream audit software like DxnAudit, UFIDA Audit, Zhongpu Audit Software, and eCPA Audit Software. The focus should be on mastering one to two audit software programs in depth. Through systematic study of audit software courses, students can gain a comprehensive understanding of the application of emerging technologies in the audit field, ensuring that the course content is in close alignment with actual industry practices, and cultivating students' practical operation skills and innovative thinking abilities. The audit information technology teaching management platform is shown in Figure 2. Thirdly, paying attention to the integration of information technology with the theory and practice of auditing, reflecting interdisciplinary integration, broadening students' knowledge, and cultivating versatile audit talent.

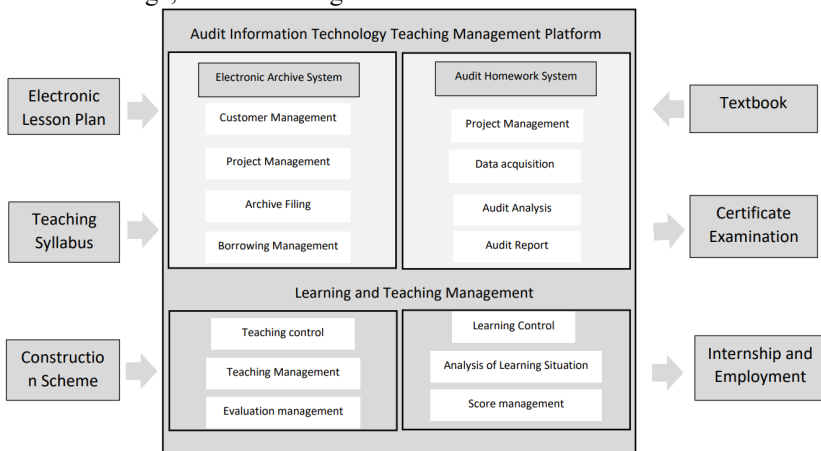


Fig. 2. Audit information technology teaching management platform

4.2 Application of Information Technology in the Teaching Model of Auditing Major

Li Dongshi (2023) pointed out that the classroom is the main front for implementing core competencies. Smart classrooms integrate various advanced artificial intelligence

technologies and digital equipment, which can not only provide learning resources but also enable differentiated education^[10]. Traditional teaching in the auditing major is teacher-centered, classroom-based, and primarily conducted through lectures and discussions. The application of information technology to the teaching model of the auditing major has provided new resources for innovation. By using AI teaching assistants, big data analysis of learning behaviors, and adopting blended teaching, virtual simulation, and flipped classrooms, the model has shifted to a student-centered approach, transitioning from teacher-led instruction to student-driven autonomous learning. This integration of classroom teaching and online learning breaks through spatial and temporal limitations. The specific application paths are as follows: Firstly, improving teaching methods and learning efficiency through the use of information technology. For example, utilizing platforms such as Moodle, Canvas, Blackboard, Chinese University MOOC, Google Drive, One Drive, and Baidu Cloud for teaching management and resources, adopting digital twin technology in classrooms, flipped classroom models, and virtual simulation technology. Students can fully participate in pre-class, in-class, and post-class learning, enhancing their learning efficiency and practical skills through case analysis, problem discussions, and virtual audit practices. Secondly, strengthening comprehensive learning management through the use of information technology, continuously enriching course resources, and enhancing online course construction. For instance, introducing online course resources from Chinese University MOOC or building courses and audit case databases on online learning platforms, purchasing industry databases, and providing students with flexible learning times and places. This facilitates easy access to materials and data analysis for students. Online learning platforms can offer interaction opportunities before, during, and after class, and can be used for discussions, assignments, grading of regular performance, and final course assessments, improving teaching management efficiency. Thirdly, continuously improving blended teaching through the use of information technology by strengthening the construction of online and offline course resources, leveraging the advantages of traditional classrooms and online teaching. This involves learning theory online, in-depth discussions in class, and conducting experiments and internships through laboratories, training bases, and virtual training platforms. By using tools like Ding Talk classrooms, virtual simulation, immersive technologies, virtual reality (VR), augmented reality (AR), artificial intelligence, big data applications, and AI+big data to optimize teaching decisions, information technology can better facilitate student autonomy, efficient use of classroom time, personalized teaching, and improve learning efficiency and teaching management effectiveness.

4.3 Application of Information Technology in the Practical Teaching of the Auditing Major

Practical teaching is a crucial step in guiding students to apply theoretical knowledge to actual audit work. It cultivates students' professional quality and team spirit, exercises their ability to analyze and solve problems, enhances their audit skills and practical capabilities, and fosters a sense of discipline and compliance. It also familiarizes

students with the application of audit standards, regulations, and professional ethics in auditing. Throughout this process, the information literacy of teachers is continuously improved. Audit practical teaching has been a bottleneck in traditional teaching, but the application of information technology in audit practical teaching offers a new model. Firstly, the use of information technology to develop virtual simulation audit practice platforms. These platforms can facilitate basic skill training in auditing, practice of audit processes, case analysis, and process evaluation. Currently available virtual simulation audit practice platforms include the AI Online Audit Learning Star Training Platform, the Digiwin Audit Teaching and Training Software, the Intelligent Audit Practice Teaching Platform, and the Big Data Audit Technology Comprehensive Training Teaching Platform, among others. By creating a virtual simulation audit environment, these platforms overcome the limitations of traditional teaching, such as limited resources and higher risks, allowing students to experience real audit processes and conduct practical training in a virtual environment, thereby improving their risk identification and response capabilities. Secondly, the use of information technology to enhance students' data analysis skills. In practical teaching, emphasis is placed on cultivating students' abilities in data collection, cleaning, analysis, and visualization. Students are introduced to data analysis software such as Liyun Quick BI, Power BI, ACL, Python, IDEA, etc., to detect data anomalies and identify audit risks. Through the analysis of audit data, students' application capabilities in information technology are continuously improved, and their data thinking and analytical skills are developed. Thirdly, leveraging information technology to strengthen school-enterprise cooperation, leveraging the strengths of each party to provide internship opportunities for students and expose them to real audit projects. By establishing practice bases with accounting firms, audit software companies, and large enterprises, students can keep abreast of new developments in the audit industry and the application of information technology, thus enhancing the relevance and effectiveness of practical teaching. The level of practical teaching is also a significant characteristic of a school's management level. Schools should enhance their management standards by prioritizing the development of informatization. Li Huipeng (2022) pointed out that advancing the informatization of higher education management, creating an informatized teaching management platform, and innovating the means and methods of educational management hold substantial practical significance ^[11].

5 Case Analysis of Information Technology Application in Audit Talent Development

Taking the Audit program at Guangxi Vocational Normal University as an example, in recent years, the college has actively promoted the application of information technology in talent development. This primarily includes: Adopting the "Learning Pass Platform" for online-offline hybrid teaching and daily student management. Utilizing the "Audit Informatization Practical Teaching Platform" and "Intelligent Audit Practical Teaching Platform" for simulated audit practice instruction. The specific details are as follows:

5.1 Improvement of the Curriculum System in Audit Program Talent Development

The college has revised the curriculum system for the Auditing program, placing a strong emphasis on cultivating students' ability to apply information technology and fostering innovative thinking. New courses have been added, including "Artificial Intelligence and Computer Applications," "Information Technology and Future Education," "Application of EXCEL in Auditing," "Python for Big Data Auditing," "Audit Informatization (CPAS)," "Big Data Financial Analysis and Visualization," "Intelligent Auditing (New Dao)," and "Intelligent Auditing Practical Training." Additionally, information technology elements have been integrated into some traditional theoretical courses. For example: The "Principles of Auditing" course now includes practical training on audit informatization. The "Financial Statement Analysis" course incorporates big data analysis and visualization technologies. The "Audit Practice" course has added intelligent auditing technologies. These reforms and improvements to the curriculum system in the Auditing program's talent development plan have significantly enhanced students' proficiency in applying information technology and their capacity for innovative thinking.

5.2 Innovation in the Teaching Model for Audit Program Talent Development

The college has strengthened the construction of the informationized teaching platform in order to achieve the goal of blended online and offline teaching. It has purchased teaching platforms such as Xuetong, audit informatization, and intelligent audit. Through the Xuetong teaching platform and the intelligent audit platform, the management of student learning and teacher teaching has been enhanced, effectively realizing teacher-student interaction and supervision before, during, and after class. The teaching platform consists of three main parts: the first is the online teaching section, which includes the online learning platform, audit simulation software, and AI-assisted teaching; the second is the offline teaching section, which includes classroom lectures, practical operations, and group discussions; and the third is the blended online and offline teaching section, which includes pre-class preparation, in-class interaction, and post-class summary. The Audit major has basically adopted a blended teaching model. Through the Xuetong online learning platform, most instructors have built courses on the platform, allowing for online communication between teachers and students. Students can independently study theoretical knowledge before class and focus on solving more difficult knowledge points through case analysis and problem discussion during class. After class, students complete assignments and upload assessment content through the teaching platform, which has effectively addressed issues such as resource recommendation and course planning before class, targeted explanations and group learning during class, and synchronized and personalized practice after class. This has broken through the time and space limitations of traditional teaching, basically achieving the enhancement of students' ability to combine audit theory with practice, increasing their proficiency in using informationized tools, and cultivating their ability to solve practical audit problems. It has effectively im-

proved the efficiency and resource allocation level of teaching and learning. The framework of the blended online and offline teaching model for the Audit major can be seen in Figure 3.

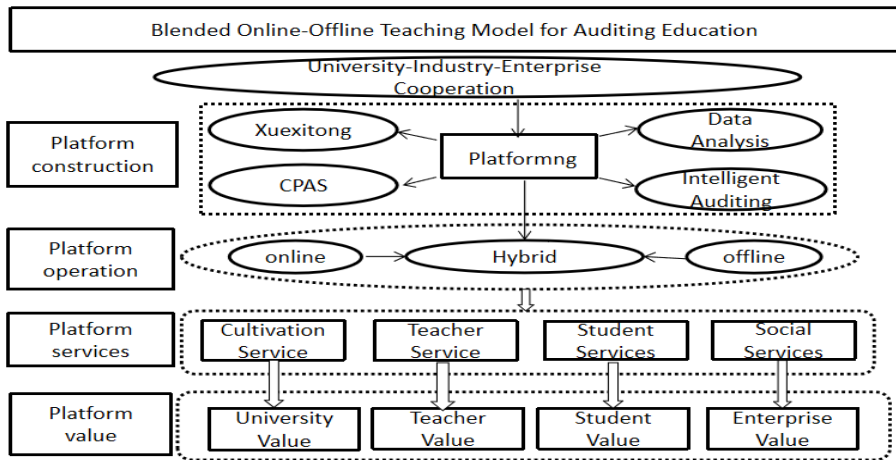


Fig. 3. Blended Online-Offline Teaching Model for Auditing Education

5.3 Enhancement of On-Campus Practical Teaching for Audit Program Talent Development

The college has strengthened the construction of audit training platforms by acquiring the "Audit Informatization Practical Teaching Platform" and the "Intelligent Audit Practical Teaching Platform." Through virtual simulation experiment platforms and desensitized audit cases, students can simulate real-world audit environments and processes. By conducting audit training in virtual scenarios, students gain a deeper understanding of the relationship between audit theory and practice, master audit methods and techniques, familiarize themselves with audit procedures, and enhance their comprehension of the sufficiency and appropriateness of audit evidence. Additionally, this approach improves students' professional judgment in risk assessment and their teamwork skills during the audit process. This virtual simulation training model not only increases teaching efficiency but also cultivates students' hands-on audit capabilities, proficiency in using information tools, teamwork skills, and innovative thinking abilities.

5.4 Improvement of Off-campus Practical Teaching for the Training of Auditing Professionals

The college strengthens its ties with external auditing industry associations and accounting firms, joining the National Audit Vocational Education Alliance and the Guangxi Audit Society. It has established cooperative relationships with multiple accounting firms and enterprises, such as Guangxi Xianghao Certified Public Accountants, to provide auditing students with off-campus practical opportunities.

Through professional internships and graduation internships, students are encouraged to apply the big data analysis tools and audit informatization tools they have learned in real auditing services at firms. The off-campus practice allows students to promptly understand the informatization technology tools used in the auditing industry, better integrate theory with practice, consolidate the auditing theoretical knowledge acquired during their studies, and effectively improve their professional auditing literacy and competitive ability in the industry.

6 Conclusion

This paper explores the application pathways of information technology in the cultivation of talent within the Auditing program. Research indicates that the integration of information technology in Auditing education enhances the quality of talent development, improves the efficiency of teaching and learning, and better meets the demand for interdisciplinary professionals in the auditing industry compared to traditional training models. By refining the Auditing curriculum system and incorporating more information technology content aligned with industry needs, the program has achieved significant progress. The establishment of information-based management and learning platforms has broken the time and space constraints of traditional teaching, fostering innovative teaching models that enhance both the efficiency and quality of education. Additionally, the use of information technology to improve practical teaching environments serves as a bridge for communication, strengthening both on-campus and off-campus professional practices and narrowing the gap between academic knowledge and practical application. This approach continuously elevates students' professional competence, technical application skills, and innovative thinking abilities.

Information technology represents not only a revolution in auditing tools but also a transformation in the model of auditing talent cultivation. The development of talent in the Auditing program must closely follow industry trends and adapt to the broader societal environment, continuously deepening the application of information technology to cultivate students' ability to learn and apply these technologies. Educational institutions should stay aligned with industry realities, constructing a "technology + business + compliance" trinity curriculum system. By leveraging information technology, they can refine teaching methods, optimize course content, and consistently enhance the efficiency of teaching management and the learning process. Furthermore, institutions should strengthen university-industry collaboration through information tools, actively engaging with the industry to understand its current state, needs, and pressing challenges. This approach fosters open education and improves the effectiveness of teaching practices. Empowered by information technology, students can develop data analysis skills, risk insight, continuous learning capabilities, and a sense of technological ethics, enabling them to meet the ongoing demands of auditing in the digital economy era. In the future, the long-term impact of information technology on assisted teaching and its applicability across different educational environments warrant further exploration.

Acknowledgments

Ministry of Education Higher Education Department's 2021 Second Batch of Industry-University Collaboration for Co-Educational Projects, Project Name: "Construction of Demonstration Courses for Audit Informatization", Project Number: 202102595018.

References

1. Xia M .Thinking about the Construction of the OBE-Based Industry-Education Integration Information Technology Talent Training Model[J].Frontiers in Educational Research,2023,6(2):45:50.
2. Dongqin W .Application of Digital Media Technology for Teaching in Higher Vocational Colleges Using Big Data[J].Mobile Information Systems,2022,2022
3. Wang Z ,Lin Y .Talent Training Model of Auditing under the Background of Artificial Intelligence[J].Journal of Physics: Conference Series,2020,1533(3):032075.
4. Luo Aiqi, Chu Deyong, Peng Xiaojun. Implications of the Informatization Reform in the Industry for Audit Education [J]. Marketing World, 2020, (11): 112-113.
5. Geng Hongying. Research on Applied University Audit Education Based on Social Talent Demand in the Big Data Era [J]. Modern Auditing and Accounting, 2023, (06): 32-34.
6. Zhang Fengyuan, Dong Yuanyuan, Li Zhuolan. Exploration of the Training Model for Intelligent Audit Talents in the Age of Artificial Intelligence [J]. Commercial Accounting, 2024, (19): 142-145.
7. Zhang Jianshun. Research on the Optimization of Big Data Audit Talent Training Model in the Context of New Liberal Arts [J]. Educational Observation, 2024, 13(07): 55-58.
8. Wang Yunwu, Li Yanning, Li Dan, et al. Analysis and foresight of the strategic planning for educational informatization during the 14th Five-Year Plan period [J]. Modern Educational Technology, 2021, 31(06): 5-13.
9. Wang Xing, Li Hualong. Research on the developmental resource allocation mechanism based on the informatization of higher education [J]. Higher Education Exploration, 2023, (01): 23-29.
10. Li Dongshi. Promoting educational informatization with the construction of smart classrooms [J]. Chinese Journal of Education, 2023, (10): 103.
11. Li Huipeng, Zhao Qing. Innovation of University Education Management Mode under the Background of Informatization - A Review of "Deep Integration of Educational Informatization and Higher Education Teaching Reform"[J]. China Science and Technology Papers, 2022, 17(03): 361.

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