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Smart Classroom Empowering the Teaching Reform of Management Accounting: A Path Exploration from Knowledge Accumulation to Autonomous Thinking

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Abstract: Under the dual impetus of artificial intelligence reshaping the accounting industry ecosystem and the Ministry of Education's smart education policies, the traditional teaching model of Management Accounting struggles to meet the demand for cultivating interdisciplinary talents who integrate "knowledge accumulation" with "systematic thinking" in the era of digital intelligence. This paper focuses on curriculum reform in Management Accounting through the lens of smart classrooms, aiming to resolve the dilemmas of "fragmented knowledge" and "disconnected practice" in accounting education. A literature review reveals that while existing research has advanced theoretical frameworks and teaching models for smart classrooms, challenges persist, including insufficient integration with accounting disciplines and the superficial adoption of digital tools. Addressing the current "smart classroom isolation effect" and the gap in teachers'digital teaching capabilities, This paper proposes a "trinity reform path": (a) constructing a "modular resource pool" for teaching content by integrating on- and off-campus smart platform resources; (b) implementing an "online-offline dual cycle" teaching environment, leveraging smart learning platforms for theoretical instruction and in-depth case discussions; (c) adopting a "three-stage progressive" teaching process (pre-class knowledge expansion, in-class case analysis, and post-class evaluation feedback), incorporating flipped classrooms and scenario-based teaching. The research highlights the need for "two shifts" in smart classroom-enabled Management Accounting education: from tool-oriented to ecosystem reconstruction, and from one-way knowledge delivery to a "knowledge + competency" dual-driven approach. Ultimately, through collaborative efforts between teachers and students (student-led learning and teacher-led smart design), this reform aims to transition Management Accounting education from "exam-oriented" to "decision-making competency cultivation, " providing theoretical and practical insights for smart education reform in accounting disciplines.

Keywords: Smart Classroom; Management Accounting; Teaching Reform

1. Introduction

The application and development of artificial intelligence in accounting have transformed market demands for accounting professionals into a need for innovative, application-oriented talents with comprehensive interdisciplinary knowledge and systematic thinking abilities. The Education Informatization 2.0 Action Plan issued by the Ministry of Education in 2018 identified "innovative development of smart education" as one of the "eight actions" to advance education informatization. The 14th Five-Year Plan for Digital Economy Development further emphasized deepening smart education. As a core practice of smart education, smart classrooms transform traditional teaching scenarios into hybrid online-offline environments. Smart educational platforms provide abundant online resources to guide active learning, while big data and learning analytics enable teachers to observe student performance more deeply, refine teaching plans, and tailor cultivation strategies [1]. Additionally, smart teaching models reshape teacher-student interactions, fostering innovation, expanding learning channels, and improving efficiency through new pedagogical approaches.

Future accounting professionals must utilize

internet resources and integrate financial accounting, management accounting, auditing, and other disciplines to fulfill predictive and decision-making roles. The content of Management Accounting aligns closely with these demands, making it critical to address the synergy between "knowledge accumulation" and "systematic thinking" in accounting education. This paper focuses on reforming Management Accounting teaching by leveraging digital technologies to build efficient smart classroom models, thereby enhancing teaching quality.

2. Literature Review

As a product of the information age, smart classrooms should ultimately serve the classroom with teachers and students, leveraging intelligent technology to enable smart learning and efficient classrooms. Currently, research on smart classrooms mainly focuses on two levels:

2.1 What is a Smart Classroom?

This primarily includes its concept, characteristics, platform construction, and system architecture, which have been analyzed by different scholars from different perspectives. Zhong Shaochun (2014) proposed from the perspective of "smart education" that a smart classroom is a new type of classroom that can effectively improve students' intellectual qualities in a personalized, intelligent, and digital learning environment [1]. He Kekang (2015) pointed out that a smart classroom is a brand-new educational model formed by teachers using Educational Data Mining (EDM) and Learning Analytics (LA) techniques for intelligent decision-making, implementation, and evaluation [2]. Sun Shuhui and Liu Bangqi (2018) viewed smart classrooms from an information technology perspective, arguing that teaching decisions in smart classrooms are data-driven, learning evaluations are instant, and resources are intelligent. They also discussed the system structure of smart classrooms and four application models of data mining based on practical experience [3]. Liu Bangqi (2019) introduced the concept of a new generation of smart classrooms from an information technology perspective, emphasizing the use of intelligent information technologies such as artificial intelligence, big data, cloud computing, and the Internet of Things to create intelligent and efficient classrooms guided by advanced learning theories and aimed at promoting the development of students' core competencies [4]. Li Xinxin et al. (2020) designed a framework for smart classrooms based on their autonomy and diversity, consisting of processing platforms and application platforms [5].

2.2 What does an Effective Smart Classroom Teaching Model Look Like?

Chinese scholars have explored smart classroom teaching models and smart classroom teaching models combined with disciplines from their own perspectives, such as: Sun Shuhui (2015) proposed an "8+8 process" based on dynamic learning data analysis, including eight steps for teachers and eight steps for students [6]. Wang Xingyu (2020) divided smart classroom teaching activities into three types: feedback-oriented, resource-oriented, and negotiation-oriented, based on a theoretical model [7]. Liu Bangqi (2020) proposed a "new three-stage, ten-step" teaching process based on "individualized teaching according to students' aptitudes." It is evident that the exploration of smart classroom teaching models is endless, gradually maturing and being applied to practical teaching, but the effectiveness of each model needs further verification. Additionally, how to enable students to achieve true smart learning through smart classrooms, stimulate their intrinsic learning motivation, promote autonomous learning, and explore the factors influencing students' learning in smart classrooms are also current research priorities [8]. Wang Xing (2021) pointed out that the current construction concept of smart classrooms is shifting from "student-centered" to "empowering students' smart development, "thereby promoting high-quality education development [9]. Qin Shanpeng et al. (2020) believed that based on the shortcomings of smart classroom teaching, teachers should pay special attention to activating classroom atmospheres and establishing diverse evaluation standards to cultivate students' subjective consciousness in smart classrooms [10]. After reviewing existing literature, it can be found that scholars are gradually realizing that accounting professional courses should be fully integrated with smart education to let smart classrooms

serve the teaching of professional courses. Although many studies have provided the necessary theoretical foundation and practical basis for research, there is still room for improvement: (1) Although some high-level universities have taken the lead in introducing smart classrooms into daily teaching, most others are still exploring and have not fully implemented them. (2) The current teaching system considers the incorporation of digital teaching tools as smart classrooms, but they have not achieved substantial equivalence in effectiveness.

3. Analysis of the Current Status of Smart Classroom Teaching in "Management Accounting"

"Management Accounting" is a core course for accounting, auditing, and finance majors. It covers content such as cost accounting methods and controls, forecasting techniques, comprehensive budget management, short and long-term decision-making, performance evaluation and assessment, among others. These topics build on students' foundational knowledge from courses like "Financial Accounting" and "Management," aiming to enhance their integration and practical application of knowledge. It involves a series of theories such as cost accounting and control methods, sales and profit forecasting methods, production decision-making methods, investment decision-making methods, budget management methods, and performance evaluation methods. In practice, by collecting production and operation information, applying methods, comparing schemes, and selecting optimal solutions, it assists enterprise managers in making correct decisions and achieving healthy and sustainable corporate development.

Currently, teaching "Management Accounting" primarily relies on theoretical lectures and exercise practice to introduce students to classic management accounting methods. However, traditional teaching methods do not effectively convey the discrimination between methods or their practical applications, leading to unremarkable learning experiences for students. Additionally, due to the short-term infusion of fragmented and theoretical knowledge, students often lack interest and struggle to integrate the concepts, resulting in phenomena such as disinterest, rapid forgetting,

inability to apply learned knowledge, and ultimately rushing to pass exams. This is extremely detrimental to students' construction of an accounting knowledge framework and systematic accounting thinking. Therefore, reforms are needed in the teaching environment, resources, and methods.

3.1 The "Island Effect" Exists in Smart Classroom Teaching.

The teaching of "Management Accounting" and smart classrooms are set up in parallel, remaining separated and belonging to two different levels without effective integration. The teaching process of "Management Accounting" mainly employs traditional offline face-to-face instruction, with courseware displayed on platforms like Chaoxing and Zhihuitree for content that cannot be covered in class, expecting students to learn in their limited free time after class. However, the learning process and outcomes are not tracked or evaluated, failing to effectively supervise students. Meanwhile, online learning platforms offer limited teaching resources, insufficient for students to achieve the same learning effects as offline. The smart classroom exists in name only and has not been implemented effectively. Although the construction of smart classrooms is progressing, the pace is slow, and the results are relatively limited.

3.2 The Awareness and Ability of Professional Teachers in Smart Teaching Reform Need Improvement.

Most teachers have a strong emphasis on research and a relatively weak focus on teaching in current universities. Only a few teachers are driving teaching reforms, and the overall teaching staff's awareness of smart teaching reform is relatively weak, with their smart teaching abilities needing further enhancement. As a professional foundation course, "Management Accounting" has strong practicality. Whether students can master corresponding knowledge and possess innovative decision-making abilities is crucial for cultivating innovative and applied talents. Therefore, teachers are required to prioritize the reform of smart classrooms in "Management Accounting" and actively participate in learning and training to promote smart classroom teaching reform in this course.

4. Analysis of Teaching Design and Implementation Strategies for the "Management Accounting" Smart Course

Firstly, in terms of teaching content, the smart learning platform established by the school should be utilized to integrate learning resources for the "Management Accounting" course both inside and outside the school. With the support of existing teaching materials, lesson plans, courseware, and lecture notes within the school, and in combination with the school's talent training programs and discipline construction characteristics in the field of accounting and finance, online teaching resources such as MOOCs, Zhihuitree, Chaoxing Learning Tong, and SPOCs should be fully referenced and learned from. Suitable learning modules for "Management Accounting" that cater to the training needs of students at our school should be compiled and sorted out. Furthermore, course content or management accounting theories, methodologies, and other related aspects should be updated and adjusted in a timely manner to keep pace with the times.

Secondly, in terms of the teaching environment, on the one hand, the smart learning platform should be fully leveraged to transfer the theoretical part of teaching resources from offline classrooms to the online platform. Video watching, preview learning, exercises, and assessments for theoretical instruction and classroom exercises with a single correspondence between theory and methodology should be transferred to the smart learning platform. A certain proportion of scores should be assigned to the online teaching process based on content volume and duration in the overall assessment results. On the other hand, comprehensive cases for each module of "Management Accounting," the application of theoretical knowledge integrated with other disciplines, and the discrimination and innovation of related management accounting methods should be thoroughly discussed, demonstrated, mutually evaluated, and debated in offline classrooms. This allows the offline and online teaching environments to fully exert their respective advantages and enhance classroom quality. In terms of teaching methods, modern information-based teaching means should be fully utilized, adopting flipped classrooms, situational teaching, group discussions, case study seminars, and other teaching methods to stimulate students' interest in learning and guide them to develop a passion for accounting majors.

Thirdly, in terms of the teaching process, it should be fully aligned with the corresponding majors of the course, and content modules with better applicability should be flexibly adjusted. The teaching process can be divided into pre-class, in-class, and post-class sessions. (1)Pre-class materials, such as the historical evolution of management accounting theories and methodologies, which expand knowledge, should be provided to students to deepen their impression and spark interest. Appropriate objective questions with a relatively small proportion of points should be included on the smart learning platform for supervision and assessment. Cases for specific content to be discussed in offline classrooms can also be provided via the smart learning platform for students to preview and collect materials. (2) During the in-class session, diverse teaching methods and novel teaching means should be comprehensively utilized to improve the teaching process. Cases discussed in class should be selected in a timely manner, capturing hot topics of the era and selecting those that reflect important real-world issues in China. Real-life situations should be typified, and offline teaching methods such as teacher-student interaction, group seminars, and practical exercises, combined with flipped classrooms, should be used to deeply analyze the teaching content of each chapter. Elements such as cost control, budgeting, forecasting, decision-making, and evaluation in management accounting should be integrated. Teaching cases that guide students to integrate knowledge and think independently should be designed to organically combine professional knowledge points with practice. (3) Post-class, online teaching methods such as SPOCs and MOOCs should be used to further explore related management accounting methodologies, thereby further broadening students' knowledge dimensions. Meanwhile, based on students' learning feedback, teaching evaluations from teaching supervisors, and teaching exchanges with peers inside and outside the school, process evaluations,

summary evaluations, and dynamic evaluations should be conducted for the smart teaching of "Management Accounting." Teachers should continuously adjust course content and design based on evaluation results, enhance teaching skills and abilities, and engage in further reflection and recognition of ideological and political teaching practice through teaching introspection.

5. Discussion

This paper focuses on the structural transformation of accounting talent capabilities demanded by the digital-intelligence era, using smart classrooms as a breakthrough to reconstruct the teaching model of "Management Accounting," and reveals the necessity and feasibility of transitioning from traditional teaching paradigms to dual-dimensional goals of "knowledge-competence."

5.1 Echnology Empowerment and Ecosystem Reconstruction

The application of smart classrooms needs to transcend the simple addition of digital tools, reconstructing the teaching ecosystem through "modular resource pools," "online-offline dual cycles," and a "three-stage progressive" model to form a closed loop of "theory-practice-evaluation," effectively addressing issues of fragmented knowledge and disconnection from practical applications.

5.2 Teacher-Student Collaboration and Role Upgrades

Teachers need to transform from "knowledge transmitters" to "smart instructional designers," stimulating students' autonomous thinking through dynamic feedback and precise interventions; students, in turn, must shift from "passive receivers" to "active learners," internalizing knowledge and transferring skills through case studies and decision-making simulations.

5.3 System Adaptation and Continuous Improvement

Smart teaching reforms require supporting mechanisms such as teacher training in digital intelligence, industry-university collaborative resource provision, and dynamic evaluation systems to avoid "smart islands" and formalistic pitfalls.

Future research can further explore: differentiated implementation paths of smart classrooms in different knowledge modules of management accounting (such as budget management and performance evaluation); models for analyzing learning behaviors based on big data and dynamically optimizing teaching strategies; and the potential applications of intelligent technologies (like generative AI) in generating management accounting cases and simulating decision-making scenarios.

6. Conclusion

This paper provides a replicable theoretical framework and practical paradigm for the smart education reform of finance and accounting majors. The reform and practice of the intelligent classroom in management accounting education have demonstrated significant potential in enhancing learning outcomes and fostering student engagement. By integrating advanced technologies such as data analytics, artificial intelligence, and interactive platforms, the intelligent classroom has transformed traditional teaching methods into dynamic, student-centered learning experiences. This approach not only improves the understanding of complex accounting concepts but also equips students with practical skills essential for the modern business environment. Furthermore, the emphasis on real-time feedback and personalized learning paths has proven effective in addressing diverse learning needs. However, challenges such as resource allocation and faculty training must be addressed to fully realize the benefits of this innovative approach. Future research should focus on long-term impacts and scalability to ensure the sustainable integration of intelligent classrooms in management accounting education.

References
[1] Tang Yewei, Pang Jingwen, Zhong Shaochun, Wang Wei. Research on the

Construction Methods and Cases of Smart Classrooms in an IT Environment. China Educational Technology, 2014 (11): 23-29.

[2] He Kekang. Smart Classroom + Classroom Teaching Structure Reform: The Fundamental Path to Achieving Educational Informatization Goals. Educational Research, 2015, 36(11): 76-81.

[3] Sun Shuhui, Liu Bangqi, Li Xin. Data Mining and Learning Analytics Framework for Smart Classrooms and Its Applications. China Educational Technology, 2018 (02): 59-66.

[4] Liu Bangqi. Development, Platform Architecture, and Application Design of Smart Classrooms: From Smart Classroom 1.0 to 3.0. Modern Educational Technology, 2019, 29(03): 18-24.

[5] Li Xinxin, Zhao Chunyan, Zhang Ling. Research on Smart Classroom Framework Based on Cloud Face Recognition Technology. Experimental Technology and Management, 2020, 37(06): 172-175.

[6] Sun Shuhui, Liu Bangqi. Dynamic Learning Data Analysis-Based Smart Classroom Model. China Education Informatization, 2015 (22): 21-24.

[7] Wang, Xinyu. Research on Smart Classroom Teaching Mode from the Perspective of Activity Theory. China Educational Technology, 2020(04), 118-124.

[8] Liu Bangqi. Construction and Application of the "Personalized Teaching" Model Supported by Intelligent Technology: A Case Study of Smart Classrooms. China Educational Technology, 2020 (09): 30-39.

[9] Wang Xing, Li Huailong. The Dynamic Mechanism and Operational Logic of Smart Classrooms in Empowering Student Wisdom Development. Modern Educational Technology, 2021, 31(11): 5-11.

[10] Qin Shanpeng, Yu Yuanming, Sui Jingxue. Cultivating Students'Subjective Consciousness in Smart Classrooms. Teaching and Management, 2020 (35): 1-3.