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Application of Social Practice Method in the Production and Operations Course

Rui Zhang [1, a], Gangzhi Guo [2, b]

[1] School of Business, Jianghan University, Wuhan 430056, China

[2] Yiwu Industrial & Commercial College, Yiwu 322000, China

[a] lx_zr@163.com, [b] 503075251@qq.com

Abstract: The Production and Operations course is one of the core courses in management studies, emphasizing the integration of theory and practice. Traditional teaching is largely classroom-based, and students find it difficult to translate abstract concepts into practical skills. The social practice method extends the classroom to real production environments through company visits, internships, case studies, etc. This paper discusses the application framework, implementation paths, effect evaluation, and potential challenges of the social practice method in the Production and Operations course. Research shows that this method significantly enhances students' problem-solving skills, team collaboration awareness, and professional competence.

Keywords: Production and Operations Course, Social Practice Method, Practical Teaching.

1. Introduction

1.1. Research Background

With the intelligent transformation of the manufacturing industry, Chinese enterprises' demand for production and operations management talents has shifted from "knowledge-based" to "competency-based." The Production and Operations course covers topics like supply chain management, lean production, quality control, and capacity planning, which are highly theoretical but complex in practice. Traditional "injection-type" teaching often leads to students knowing "what" but not "why," resulting in a prolonged adaptation period after entering the workforce. Practical education, which inherits Chinese traditional culture, is an effective way to increase students' interest in learning by conducting various practical activities, enhancing understanding of theoretical knowledge in practice, and continually cultivating students' innovative and practical abilities.

1.2. Research Significance

Theory and Practice Integration: The social practice method emphasizes deepening understanding of theoretical knowledge through hands-on experience. By introducing this method into the Production and Operations course, it helps students connect textbook knowledge with real production processes, improving learning effectiveness.

Through practice, students acquire practical operational skills and problem-solving abilities, enhancing their comprehensive quality in the field of production and operations. This is of great significance for entering the workforce, especially in industries like manufacturing and services. Production and operations typically require teamwork. The social practice method allows students to engage in role-playing and communication coordination within a team, enhancing their team collaboration and interpersonal skills—key soft skills in modern workplaces. In practice, students often need to apply innovative thinking to solve problems. This innovation awareness has a positive impact on students' future career development and personal growth. Research on the application of the social practice method in the Production and Operations course provides new perspectives and methods for course reform in higher education, promoting the diversification and flexibility of educational models. With the growing demand for applied talents, the application of the social practice method better aligns with modern enterprises' expectations and provides students with industry-related opportunities to enhance their competitiveness in the job market. In conclusion, this research not only holds significant academic value but also contributes to the transformation of educational practices and the overall development of students.

2. Theoretical Basis of Social Practice Method

2.1. Definition of Concept

The social practice method refers to organizing students to participate in real scenarios of enterprise production, management, improvement, etc., where they observe, operate, and reflect, internalizing textbook knowledge into abilities. Compared to case-based teaching (indirect experience), the social practice method provides direct sensory stimulation. Compared to experimental simulations (virtual environments), it offers stronger authenticity.

2.2. Theoretical Support

2.2.1. John Dewey's "Learning by Doing" Theory

One of Dewey's core educational philosophies is that learning should be promoted through practical activities rather than solely relying on rote memorization or theoretical instruction. Dewey argued that education aims to cultivate students to become active participants in society, capable of solving real-world problems. Therefore, the educational process should closely connect with students' real-life experiences. Dewey opposed teacher-centered education and advocated for students to be active participants in the learning process. Learning should not only focus on theoretical knowledge but should also involve solving practical problems, where students gain experience, reflect, and improve.

2.2.2. Kolb's Experiential Learning Cycle

Kolb's experiential learning theory is a classic theory of learning, which proposes a cyclical model of the learning process. It emphasizes that learning is a process that involves actual experience, reflection, conceptualization, and application. The core idea of the theory is that learning is not just about receiving information but about continuously developing and deepening one's understanding of knowledge through practice and experience. Kolb believes that learning is a cyclical process, not a linear accumulation of knowledge. Learners improve and deepen their understanding by experiencing and reflecting on their experiences, and ultimately apply this understanding to new situations. Kolb's experiential learning theory includes four main learning stages, which continually cycle through a closed loop: The first step of learning is direct, concrete experience. This could be an activity, experiment, event, or task, where learners gain direct impressions through active participation. After the concrete experience, learners need to pause and reflect on their experience. They review and think about the experience, trying to understand its meaning and relevance. Through reflective observation, learners then transform their experience into concepts or theories. This step involves summarizing, generalizing, and abstracting the experience, turning concrete experiences into universal theories or principles. After understanding and conceptualizing, learners apply these concepts and theories to new situations, conducting practical experiments and trials. Through these new practical activities, learners test the concepts they have formed and further adjust and refine them.

3. Current Status and Issues of Production and Operations Course Teaching

The teaching of the Production and Operations course faces challenges due to the changing needs of the industry and the evolving technologies in the sector.

3.1. Current Status of Production and Operations Course Teaching

3.1.1. Outdated Curriculum Content

Many universities' Production and Operations courses focus on traditional management theories and methods, such as linear programming and inventory control. However, modern manufacturing has evolved towards intelligent and digitalized processes, and traditional content has failed to keep pace with advancements such as Industry 4.0, big data analytics, and AI.

3.1.2. Disconnect Between Theory and Practice

The course tends to focus on theoretical knowledge but lacks practical application. Students learn frameworks and models that need to be adapted to real-world situations, leading to insufficient hands-on experience.

3.1.3. Lack of Practical Experience Among Teachers

Many teachers come from strong academic backgrounds but lack hands-on experience in industry or enterprise management, which limits their ability to provide students with practical insights.

3.1.4. Mismatch Between Course Structure and Industry Needs

The current courses are often too general and do not cater to the specific needs of different industries, such as manufacturing, services, and emerging fields like smart manufacturing or green supply chains.

3.1.5. Insufficient Use of Information Technology in Teaching

Information technology plays an essential role in modern production and operations management, but many courses lack opportunities for students to use production management software or conduct data analysis.

3.2. Major Issues in Production and Operations Course Teaching

3.2.1. Single Teaching Method

Traditional methods, such as lectures and case discussions, are not sufficient for modern production and operations management teaching, which requires more interaction and practical involvement.

3.2.2. Lack of Interdisciplinary Integration

Production and operations management requires knowledge from multiple disciplines (management, economics, engineering, IT), but many courses are still siloed, limiting students' interdisciplinary thinking.

3.2.3. Lack of Industry Practice and Internship Opportunities

Many students lack opportunities to participate in industry practices or internships, leading to insufficient practical experience and difficulty adapting to the work environment after graduation.

3.2.4. Single Evaluation Method

Traditional evaluation methods, such as exams and assignments, fail to assess students' comprehensive abilities, including practical skills and teamwork.

3.2.5. Delayed Teaching in Emerging Cross-Field Areas

New fields like Industry 4.0, supply chain digitalization, and the use of big data in production management are not adequately covered, limiting students' awareness and abilities in these cutting-edge areas.

4. Solutions and Improvements

4.1. Update Curriculum Content

Keep the course content aligned with industry developments, incorporating topics like big data, IoT, AI, and sustainable development, along with emerging industries such as green manufacturing and digital transformation.

4.2. Strengthen Practical Components

Increase practical activities like simulations, factory visits, internships, and project-based learning to enhance students' ability to apply theory to real-world problems.

4.3. Enhance Teachers' Practical Experience

Encourage and support teachers to participate in industry activities or bring in experts with practical experience to better integrate theory and practice.

4.4. Interdisciplinary Teaching Design

Promote interdisciplinary learning by collaborating across departments and designing projects that require students to apply knowledge from multiple fields.

4.5. Improve Evaluation Methods

Introduce diversified evaluation methods, such as project assessments, group cooperation, case analyses, and

simulation exercises, to assess students' overall abilities and practical skills.

4.6. Strengthen University-Industry Cooperation

Collaborate with companies to develop customized courses that align with actual industry needs, offering students opportunities for hands-on experience and industry insights.

5. Case Study of Social Practice Method in Production Operations Course

In the production operations course, the application of the social practice method helps students gain exposure to and practical experience in real production environments, enhancing their operational skills, problem-solving abilities, teamwork spirit, and innovative thinking. The following is a specific case that demonstrates how the social practice method can be effectively applied in the production operations course.

5.1. Background and Objectives of "Production Scheduling Optimization in an Intelligent Manufacturing Workshop"

This case applies the social practice method with the aim of allowing students to participate in a real or simulated production scheduling project in an intelligent manufacturing workshop. The goal is to combine production management theories and practical skills to optimize the production scheduling plan, improve production efficiency, and reduce production costs.

5.2. Partner Enterprise

The school collaborates with a local intelligent manufacturing company, which specializes in the production of home appliance products. The company has a high level of automation and informatization, with intelligent production lines that can provide real production data and a genuine production environment for students to practice.

5.3. Student Roles

Students are divided into several small groups, with each group responsible for different aspects of the project, including production planning, scheduling design, data analysis, and quality control. The team members are assigned tasks based on their interests and expertise. Each group works collaboratively to complete a comprehensive production scheduling optimization plan.

5.4. Practical Project Process and Content

First Stage, Problem Diagnosis and Data Collection. In the initial phase of the project, students, in collaboration with the company's production management team, gain an in-depth understanding of the workshop's production process, production bottlenecks, work sequence arrangements, and equipment status. Through field visits, students collect relevant production data such as production cycles, work order tasks, equipment utilization rates, production efficiency, and product quality. Students analyze the production process in the workshop and identify existing problems in the current production scheduling. They work with company staff to analyze historical production data and evaluate the existing production plans and scheduling strategies.

Second Stage, Scheduling Plan Design and Optimization. Based on the collected production data and the scheduling requirements provided by the company, students design an optimized production scheduling plan. In this phase, students need to apply scheduling theories in production operations, such as First-Come-First-Served, Shortest Processing Time, load balancing, and priority scheduling. They create a new production scheduling plan and optimize the load distribution of the production line. Using computer simulation tools, they simulate and test the new plan, assessing its impact on production efficiency and costs.

Third Stage, Implementation and Monitoring. Students, together with the company team, implement the new scheduling plan in the workshop and monitor its effectiveness in real-time during the production process. During this phase, students must adjust the scheduling plan as needed to address real production issues, such as equipment failures, personnel adjustments, and emergency orders. They apply the scheduling plan in practice, monitoring production progress, equipment operating status, and product quality. They collaborate with workshop operators and technicians to ensure the new scheduling plan is implemented effectively and address any issues that arise during the implementation process.

Fourth Stage, Evaluation and Feedback. After the project is completed, students and company managers assess the effectiveness of the optimization plan, evaluating improvements in production efficiency, equipment utilization, production cycles, and costs. During this phase, students write a report summarizing their practical experience, reflecting on the process, and proposing suggestions for further improvements. They evaluate the impact of the new plan based on the feedback from the implemented data. Students then write a final project report, share their findings with the class, and engage in a discussion. The instructor provides feedback on the students' practical outcomes.

6. Conclusion

The Production and Operations course is crucial for developing students' management and operational capabilities. However, the current teaching practices face challenges, particularly in content updates, practical components, and teaching methods. By enhancing the integration of theory and practice, updating the curriculum, improving teachers' practical experience, reforming evaluation methods, and fostering university-industry partnerships, the quality of teaching can be significantly improved to better meet industry and societal needs.

References

[1] Lü Bing, Yan Jianuo, Xiong Fei. Key Elements and Combinations of First-Class Undergraduate Major Construction. Heilongjiang Higher Education Research, 2022, 40(5):149-153.

[2] Wu Xuefen, Qiu Xia. Exploration of Blended Teaching Practice in Operations Management Under the Context of First-Class Undergraduate Construction. Higher Education Journal, 2021, 7(24):27-30.

[3] Shi Jinghuan. Strengthening Practical Education: The Path for Research Universities to Cultivate Innovative Talents. Tsinghua University Education Research, 2005, (1):9.

[4] Ying Biao, Lü Chunfeng. The Construction of the Main Education Practice System in Higher Education Institutions. China Higher Education Research, 2005 (8):90.

[5] Jiang Tanyu. The Significance and Value of "Practical Education." Academic World, 2008, (3):165-166.

[6] Chen Xu, Lei Dong, Liu Lei. Exploration and Practice of Research-Based Teaching Mode in Operations Management under the New Engineering Discipline Context. Journal of University of Electronic Science and Technology (Social Science Edition), 2020, 22(6):92-98.

[7] Zhang Chenglong, Zhang Guoliang. Exploration and Practice of Engineering Education Concepts in Operations Management Teaching under the New Business Background. Jiangsu Business Review, 2022(7):117-120.