

Research on the Teaching Reform of Integrating PMP into University Logistics Management Program

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Abstract:

The rapid advancement of informatization in logistics management has emerged as a key trend in industrial development. This paper analyzes the rationale for integrating the Project Management Professional (PMP) certification exam into the teaching of logistics management programs at universities, conducts an in-depth examination of the inherent challenges and obstacles therein, and proposes corresponding strategies and recommendations. It aims to offer meaningful insights that are both theoretically valuable and practically instructive for the teaching reform, optimization and upgrading of curriculum systems, and enhancement of professional connotation in university logistics management programs. Ultimately, this work seeks to facilitate the cultivation of more high-quality interdisciplinary professionals capable of addressing the demands of the informatization-driven development of the logistics sector.

Keywords:

PMP Certification, Logistics Management Program, Teaching Reform, Logistics Informatization, Interdisciplinary Professionals

1. Introduction

This paper aims to explore the necessity and feasibility of integrating the Information System Project Management subject of the PMP (Project Management Professional) Examination into the curriculum system of university logistics management Program. Through this curriculum integration approach, it is possible to systematically cultivate compound talents with both core literacy in logistics management and practical capabilities in information system project management, thereby enabling graduates of university logistics management program to better meet the informatization development needs of the current logistics industry and effectively alleviate the contradiction between talent supply and demand.

The PMP Examination is a professional project management qualification certification exam initiated by the Project Management Institute (PMI) and promoted globally. It is characterized by high global recognition, high standardization, and

strong industry adaptability. Based on the PMBOK® Guide (A Guide to the Project Management Body of Knowledge) as the core assessment basis, the exam covers ten knowledge areas, including Project Integration Management, Scope Management, Time Management, Cost Management, Quality Management, Resource Management, Communication Management, Risk Management, Procurement Management, and Stakeholder Management. The assessment content is closely aligned with the global development trend of project management practice and the actual needs of project management positions in different industries, especially catering to the core demands of project management in scenarios such as enterprise digital transformation, cross-regional collaboration, and complex project operation. It is one of the most popular and widely recognized qualifications in the global project management field.

2. Analysis of the Necessity of Integrating PMP Project Management into Logistics Management Program

With the in-depth penetration and application of emerging information technologies such as big data, the Internet of Things, and artificial intelligence in the logistics field, the logistics industry is accelerating its transformation towards digitalization and intelligence. Informatization has become the core driving force for improving industry efficiency and upgrading services. However, there are obvious shortcomings in the cultivation of informatization talents in logistics management program offered by domestic universities. On the one hand, the curriculum system of this major is still dominated by traditional core courses such as Warehousing Management, Transportation Organization, and Supply Chain Planning, with insufficient coverage of informatization-related knowledge such as basic computer technology, development and operation of logistics information systems, and data modeling and analysis, resulting in generally weak mastery of information technology among students. On the other hand, the assessment system of traditional professional qualification certifications in the logistics management field, such as the Logistics Engineer Qualification Examination, has not incorporated the knowledge and ability requirements of information system project management into the evaluation scope, further exacerbating the disconnection between talent cultivation and industry needs.

At the industry practice level, with the acceleration of the digital transformation process of logistics enterprises, practitioners in logistics management positions generally need to undertake the project planning, implementation coordination, risk control, and operation and maintenance management of enterprise logistics information systems. This industry demand has formed a significant supply-demand mismatch with the talent training objectives of university logistics management program, highlighting the core problem that the current professional education system is disconnected from the pace of industry development.

On the other hand, from the perspective of the adaptability between the supply-demand structure of the human resource market and the digital transformation of the logistics industry, logistics management practitioners who master information system project management skills have more competitive advantages in the core dimensions of career development. Practitioners with capabilities such as the planning, implementation, and optimization of logistics information system projects such as WMS (Warehouse Management System) and TMS (Transportation Management System), and who can integrate project management skills such as data analysis and cross-departmental collaboration, have an average annual salary 18.7%-24.3% higher than that of traditional logistics management personnel. At the same time, the

promotion cycle of such compound talents is 21%-28% shorter than that of traditional logistics management personnel, accounting for 63.5% of the core positions in supply chain digital upgrading projects, and the promotion path tends to be a dual-track development of management positions and technical expert positions [1]. The core driving factor behind this phenomenon is that the current logistics industry is accelerating its transformation towards intelligence and networking, and the demand gap for project management talents who can lead the implementation of logistics information systems and realize the full-process digital collaboration of the supply chain continues to expand. It can be seen that by mastering compound skills such as logistics information system operation, project life cycle management, and cross-link resource integration, logistics practitioners can not only better adapt to the digital operation needs of modern logistics enterprises but also form a differentiated competitive advantage in the talent market. The ceiling and growth rate of their career development are significantly better than those of practitioners with only traditional logistics operation and management capabilities, and the long-term positive driving effect on personal career development has become an industry consensus.

3. Analysis of the Difficulties in Integrating PMP Project Management into Logistics Management Program

3.1. Heavy Learning Pressure and Time Constraints on College Students

Currently, college students are under great academic pressure. The pressure sources include not only systematic learning tasks within the professional training program but also various mandatory and optional arrangements. For example, in China, the total number of undergraduate courses in various program of universities needs to reach 140 to 180 credits. Students need to take 12 to 16 courses per semester on average, with weekly classroom learning hours generally ranging from 28 to 32 hours. In addition to after-class assignments and other tasks, the daily independent learning time needs to reach 3 hours to meet academic requirements [2]. In addition, universities generally incorporate extracurricular activities into the talent training system, requiring students to participate in volunteer services, discipline competitions, social practices, community activities, etc., which also take up students' time. Against the background of overlapping pressures, if new courses related to information system project management are added to the undergraduate training program, even with a basic setting of 3 class hours per week, it will further increase students' learning burden and occupy the time they need for physical and mental adjustment. According to data from the Clinical and Counseling Psychology Professional Committee of the Chinese Psychological Society, 34.7% of current undergraduates report moderate or above learning pressure, among which excessive course load is the primary inducement [3]. The addition of new courses may lead to a further increase in this proportion, which may not only affect the learning quality of students' existing courses but also exacerbate negative emotions such as anxiety and burnout, and even have potential impacts on mental health.

3.2. Lack of Practical Project Management Experience among University Teachers and Students

In the current teaching implementation of courses related to information system project management in universities, the lack of practical links and insufficient contact with actual projects have become key bottlenecks restricting the improvement of

teaching quality. Due to the lack of university-enterprise cooperation resources, practice venues, and professional training equipment, universities still focus on theoretical teaching in the teaching process. Both teachers and students have difficulty accessing the full-process practical operations of information system projects from demand research, scheme design, implementation, to operation and maintenance optimization. This teaching mode that separates theory from practice leads to students' knowledge being mostly at the level of conceptual memory, making it difficult to understand the processing logic of complex scenarios such as risk control and cross-departmental collaboration in actual projects, and also forming a teaching dilemma of "armchair strategists".

3.3. Insufficient Motivation of Teachers

There is still a structural imbalance of "emphasizing research over teaching" in universities. This phenomenon is particularly prominent in the construction of interdisciplinary courses, directly leading to a serious lack of university-level support for courses such as information system project management that cross the fields of logistics management and information technology, and at the same time triggering a chain reaction of insufficient motivation of teachers to teach. According to a report by the Ministry of Education of China, the average proportion of scientific research funding investment in Chinese universities reaches 62.3%, while the proportion of teaching funding investment is only 37.7%, of which the proportion of funds directly related to teaching such as curriculum construction, teaching venue upgrading, and textbook development is less than 20% of the total funds. In addition, more than 60% of universities have not set up special subsidies for interdisciplinary course teaching, and the labor remuneration of teachers participating in such course teaching is no different from that of ordinary courses, making it difficult to reflect the value of additional lesson preparation and teaching investment [4].

At the same time, the research-oriented performance evaluation system of universities is the core reason for teachers' lack of motivation for curriculum reform and interdisciplinary teaching. In the promotion evaluation system of universities, the weight of scientific research achievements such as paper publications is as high as more than 70%, while the weight of teaching work such as curriculum construction and teaching reform is less than 30% [5]. For full-time teachers of logistics management program, information system project management courses involve interdisciplinary knowledge such as information technology and project management. Teachers need to invest a lot of time in systematic learning and lesson preparation. However, teaching preparation work can neither be directly converted into scientific research achievements nor gain substantial recognition in performance evaluation, leading to insufficient motivation of teachers to participate in curriculum reform, which is also the primary factor hindering their participation in curriculum construction. If seeking professional computer teachers to undertake this course, they also face the dilemma of lack of incentive mechanisms. Relevant teaching achievements are difficult to recognize in professional title evaluation and may distract their energy from scientific research and teaching in their own program. Therefore, most teachers lack the willingness to participate actively.

4. Suggestions for Integrating PMP Project Management into Logistics Management Program

4.1. Teaching Content

The teaching content should be based on the PMBOK® Guide which compiled by the Project Management Institute (PMI), the PMBOK® Guide is a benchmark document in the global project management field. Its content has been verified by industry practice and has practicality. According to the PMBOK® Guide (7th Edition) released by PMI, the core content system includes ten knowledge areas and eight performance domains, which together form a complete knowledge framework for project management and provide a clear basis for the curriculum content design of logistics management program.

The ten knowledge areas cover general processes in project management, including Project Integration Management, Scope Management, Schedule Management, Cost Management, Quality Management, Resource Management, Communication Management, Risk Management, Procurement Management, and Stakeholder Management. This system covers the key links of the entire project life cycle from initiation to closure and can be directly transformed into the core content of course teaching. At the same time, the ten knowledge areas include tools and technologies used in project management, such as risk registers and requirement lists, which are highly practical. The eight performance domains include Project Team, Stakeholders, Life Cycle Planning, Development Approach and Life Cycle, Planning, Execution, Delivery, and Measurement. Focusing on the key influencing dimensions of successful project delivery, emphasizing dynamic adjustment and result orientation, it is highly consistent with the characteristics of logistics projects with variable demands and strong link collaboration.

4.2. Effective Utilization of Online Teaching Resources

To solve the problem of college students' tight learning time, we should be good at using online teaching resources and tools. Under the background of in-depth advancement of educational digital transformation, online teaching platforms have become the core supporting carrier for university curriculum teaching reform. According to information from the Ministry of Education of China, the coverage rate of high-quality online teaching platforms in Chinese ordinary universities has reached 98.7%, and their advantages in resource integration and personalized teaching have laid a foundation for the efficient development of courses.

In the practice of curriculum integration, it is necessary to give full play to the technical empowerment role of online teaching platforms. First, build a discipline knowledge graph to realize the systematic presentation of curriculum content. Based on the curriculum syllabus, the knowledge graph can sort out core knowledge points, key and difficult points, and logical connections between knowledge nodes, form a visual knowledge network, and then provide students with accurate learning path navigation. The online teaching mode introducing knowledge graphs can improve students' knowledge acquisition efficiency by 32.5% and the score of knowledge system integrity by 28.1% [6]. Second, introducing high-quality online course resources to build a blended teaching system can solve the problem that logistics professional teachers are not capable of teaching and computer professional teachers are unwilling to teach. At the same time, these courses can form a closed teaching

loop of “online preview, offline discussion, and online consolidation” with offline classes. In summary, integrating knowledge graphs and high-quality online course resources through online teaching platforms can not only optimize the learning process and improve learning efficiency by relying on technical means but also solve the problems of students’ tight learning time and high pressure through the accessibility of resources and the flexibility of teaching modes, providing an effective path for the continuous improvement of course teaching quality.

4.3. Taking the PMP Examination as the Goal Orientation for Learning

The learning mode oriented by the PMP Examination can effectively strengthen students’ learning motivation and goal-oriented awareness through clear learning goal setting, prompting students to systematically sort out the knowledge framework around the examination syllabus, focus on core knowledge points for targeted learning, and then improve learning efficiency and the solidity of knowledge mastery. Obtaining the PMP certificate during school is not only authoritative proof of students’ professional knowledge and practical ability but also can form a differentiated competitive advantage in the job market. Especially in the context of digital transformation, enterprises’ demand for compound talents with professional qualifications is increasing day by day. The professional recognition brought by the PMP certificate can help students be more favored by employers in the job search process and lay a good foundation for their career development.

4.4. Strengthening University-Enterprise Cooperation

University teachers can take the initiative to connect with industry development needs by building a university-enterprise collaborative education mechanism, actively undertake horizontal scientific research projects of enterprises, and deeply participate in the cooperative research and development and implementation of projects related to enterprise informatization construction. With real enterprise informatization projects as the core carrier, teachers can transform the actual needs, technical applications, and management processes in the projects into practical teaching resources, provide students with immersive and phased practical participation opportunities, and guide students to deeply integrate into the whole life cycle management process of the project from demand research, scheme design, technical development, system testing to online operation and maintenance. This practical teaching mode relying on university-enterprise cooperation projects can not only effectively break the barrier between theoretical teaching and industry practice, improve the pertinence, effectiveness, and innovation of classroom teaching but also fully stimulate students’ learning initiative and participation enthusiasm, and strengthen students’ team collaboration ability, problem-solving ability, and practical operation skills in project promotion. At the same time, by combining abstract complex knowledge points such as information system project management theory, technical architecture principles, and process specification standards with actual enterprise application scenarios, it helps students establish an organic connection between theory and practice, deepen the understanding and mastery of complex concepts, and then comprehensively improve teaching quality and talent training quality, providing strong support for adapting to the industry’s demand for high-quality applied information system project management talents under the background of digital transformation.

5. Conclusions

Under the background of the in-depth empowerment of the real economy by the digital economy, the informatization construction in the field of logistics management has become the core trend driving the industry's transformation and upgrading and realizing high-quality development. From the wide application of intelligent warehousing systems to the precise analysis of logistics big data, and then to the construction of supply chain collaboration platforms, information technology has run through the entire process of logistics operations, and the ability to plan, implement and control informatization projects has also become a key component of the core competitiveness of logistics enterprises. However, in the current teaching design of logistics management program in domestic universities, the integration of teaching content related to information system project management is still insufficient, and there are common problems such as fragmented curriculum system, disconnection between teaching content and actual industry needs, and lack of practical teaching links, which make it difficult to meet the industry's demand for compound logistics talents with information system project management capabilities. Based on this, this paper takes the PMP project management knowledge system as the support, systematically analyzes the practical advantages of integrating it into the teaching of logistics management program, including making up for the shortcomings of existing teaching content, strengthening the adaptability between talent training and industry needs, and improving students' career competitiveness; at the same time, it deeply discusses potential challenges, such as the difficulty in integrating interdisciplinary teaching resources, the insufficient comprehensive ability of the teaching staff, and the organic connection between teaching content and professional core courses. On this basis, it puts forward a set of feasible and adaptable teaching integration implementation plans from multiple dimensions such as curriculum system reconstruction, teaching content optimization, practical platform construction, and teaching staff construction, aiming to provide useful references with both theoretical value and practical guiding significance for the deepening of teaching reform, the optimization and upgrading of curriculum system, and the connotation construction of university logistics management program, help cultivate more high-quality compound professional talents who adapt to the informatization development needs of the logistics industry, and provide solid talent support for the high-quality development of the industry.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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