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The Design of In-class Practical Training of Commodity Science Course Based on Project-based Teaching Method

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Abstract: With the increasing abundance of commodities, commodity science has shown great vitality. However, in some colleges and universities, the practical teaching of Commodity Science is insufficient and deviates from the discipline development and curriculum characteristics. How to integrate practice into theory teaching, in-class training is an appropriate method. Based on the analysis of the characteristics of Commodity Science and its theoretical teaching status, this paper discusses the design ideas, principles and an implementation segment of in-class training of Commodity Science based on project-based teaching method, and gives eight in-class training projects. The training program covers four teaching modules: commodity cognition, commodity management, commodity supervision and commodity consumption, and relevant teachers can extend and expand on this basis.

1. Introduction

Life cannot do without commodities. With the increasing abundance of commodities, Commodity Science have shown strong vitality. Universities and colleges have also conducted Commodity Science courses in related majors such as marketing. However, some schools have set it as a purely theoretical course in their teaching plans for various reasons, without corresponding experimental hours or relevant laboratories. From the characteristics and teaching practices of the course "Commodity Science", it is necessary to add certain practical teaching links to compensate for the shortcomings of theoretical teaching, and cultivate students' corresponding professional skills and comprehensive literacy.

From the perspective of practical teaching, without adjusting the course duration structure in the teaching plan, it is appropriate to add practical elements to theoretical teaching and adopt in-class practical training as a more appropriate method. In-class practical training is the integration of practical activities into the corresponding theoretical teaching process, without arranging separate experimental and practical hours. Even if some practical training projects require extracurricular research to be completed, there is no need for teachers to provide on-site guidance or adjust teaching plans. From the perspective of teachers, in-class practical training is easy to guide, project design is more targeted, and can closely follow a certain teaching module or knowledge point; From

the perspective of students, in-class practical training is more intuitive and vivid than simple case teaching, and students have a deeper level of participation; From the perspective of implementation feasibility, this method utilizes fewer resources, is simple and easy to implement, and is easy to replicate[1].

Given the current situation of offering commodity science courses in domestic universities and the characteristics of in-class practical training courses, this article intends to adopt a project-based teaching approach to discuss the principles and implementation stages of commodity science in-class practical training courses, analyze and design in-class practical training projects for commodity science courses, hoping to provide reference and guidance for other relevant educators.

2. Characteristics and Problems in Teaching of Commodity Science

Commodity Science is a fundamental course for management majors, which is an important course for students to understand commodities and become familiar with commodity quality management. Commodity Science not only study the natural attributes of the value of goods in use, such as their composition, structure, properties, quality, inspection, packaging, storage, etc., but also study the social attributes of the value of goods in use, such as product aesthetics, product culture, product information and prediction, resources and environment, etc.

Due to the involvement of multiple disciplines in the theoretical knowledge of Commodity Science, coupled with the wide variety of products, the teaching content and coverage of Commodity Science are diverse. From the perspective of course characteristics, it has the characteristics of practicality, complexity, and comprehensiveness[2-3].

Firstly, the research content of commodity science determines that it is a highly practical science. If students only learn the theoretical knowledge of commodity science without practical application, they will lack experience in the practical application of the knowledge they have learned, and they will not be able to understand the theoretical knowledge well. For example, product classification and coding, product packaging, etc. If only theoretical teaching is used in teaching and there is a lack of practical teaching, although students have heard a lot of product knowledge from the teacher, they are still confused when facing actual products. Secondly, with the progress and development of society, the variety of goods in the market has become more diverse. At the same time, in order to meet the needs of consumers, the updating speed of product types is also very fast, which continuously expands the research scope of Commodity Science and determines the complexity of Commodity Science. Finally, due to the study of the value and use value of commodities in Commodity Science, value theory inevitably involves political economy. The study of the natural attributes of the use value of commodities inevitably involves disciplines such as physics, chemistry, and various specialized engineering techniques. The study of the social attributes of the use value of commodities involves management, psychology, aesthetics, etc. It can be seen that Commodity Science is a comprehensive applied discipline.

From the perspective of teaching effectiveness, it is difficult for students to truly master the content they have learned, as only theoretical teaching is conducted and knowledge of Commodity Science is taught without practical application. Traditional theoretical teaching methods mainly rely on textbooks and multimedia courseware, lacking intuitiveness and imagery. Students have a weak emotional understanding of commodities and their enthusiasm for learning is also not high. In order to improve teaching effectiveness, some teachers introduce methods such as case teaching and situational teaching in order to enhance students' practical abilities. However, from the actual results, the results are very limited. For example, case teaching may become a mere formality, turning into case lectures, story meetings, and example teaching, greatly reducing the teaching effectiveness[4]. In addition, due to the lack of practical experience among students, their understanding of the

management issues described in the case may not be sufficient or there may be deviations, resulting in a phenomenon of empty, not specific, or even random analysis in case analysis[5]. In response to the above-mentioned issues in case teaching, Ding Yu et al. (2021)[6] explored the case-based practical training teaching method of the course "Introduction to Commodity Science". This method belongs to a teaching method of independent exploration, teacher-student interactive heuristic, and student field research, rather than directly providing written cases by the teacher, and then students analyze based on the provided case materials. The case-based practical training teaching method can improve the classroom ecological environment to a certain extent, enhance students' independent thinking, information absorption, and team cooperation abilities, and reduce the phenomenon of "space to space" in case analysis. How to further enhance students' understanding of the theoretical knowledge of commodity science still requires them to engage in deeper experiences, practices, and analysis in real-life situations.

In summary, in the case where the nature of Commodity Science is still a theoretical course, it is recommended that teachers carry out corresponding in-class practical training based on the content of the theoretical course. By designing scientifically reasonable practical training sessions, providing students with practical opportunities, and providing targeted guidance during the implementation process, this not only changes the teaching form of Commodity Science, but also enhances the teaching effectiveness of the course, cultivates students' comprehensive abilities and qualities, and deepens their understanding of theoretical knowledge.

3. Design ideas for the in-class practical training project of "Commodity Science"

From the perspective of scheduling in-class practical training, it can be seen that in-class practical training is interspersed between theoretical teaching in each chapter, rather than being uniformly scheduled after the course ends. From the perspective of the design concept of in-class practical training, the design of the in-class practical training project for "Commodity Science" can adopt the idea of project-based teaching.

Project based teaching method, as the name suggests, is a teaching method that organizes and carries out teaching around a project. Students learn through project participation, experience, insight, argumentation, and exploration, as well as reporting, sharing, and reflection after project completion. Project based teaching method is an innovative teaching model that takes students as the main body, projects as the guidance, and project implementation process as the center. It emphasizes the subjective initiative of students and completes knowledge construction and skill training through their personal practice[7]. In project-based teaching method, teachers are the organizers and consultants of project activities, providing guidance to students, while students are the responsible persons and participants, completing the entire project and reporting the project results.

For example, in the practical training project of Commodity Science, a group collaboration model is adopted, and each group of students needs to complete specific tasks in the project. During the participation process, they actively learn and construct knowledge from the main place. Project based teaching is project-centered, aiming to familiarize students with corresponding business activities, accumulate experience, and achieve the goal of learning knowledge and developing abilities during the process of completing projects[8].

4. Principles for designing in-class practical training projects for "Commodity Science"

4.1. The practical training project is closely related to the course content

The design of in-class practical training projects should be based on the teaching content of

Commodity Science, according to the course progress and arrangement, combined with the key and difficult points and the actual situation of students, so that students can understand the purpose of practical training and the connection between practical training projects and course content. When teaching the classification and coding of goods, students are asked to conduct research in supermarkets and shopping malls, and combine the knowledge of product classification in textbooks to observe and analyze the actual classification of goods in supermarkets and shopping malls, so as to deepen their understanding of the principles and methods of product classification; Research the coding and barcode usage of real products on supermarkets, mall shelves, and counters, and understand their coding rules.

4.2. The usefulness and interest of selecting topics for practical training projects

In addition to being relevant and meaningful to commodity theory or knowledge, the topic selection of practical training projects should also pay attention to the fun of the topic. The college student group has a strong desire for knowledge and exploration, as well as the ability to accept new things, which can stimulate their interest and enthusiasm for learning through topic selection. The saying goes, "Those who know are good, and those who are good are not as good as those who are happy." If students are interested in practical training projects, they will be willing to spend more time and energy completing the projects, and will also be more invested and focused in research and analysis. For example, when teaching about the quality of products and product selection, case teaching may simply introduce some cases of quality problems. Furthermore, a video clip from the evening of “3.15” can be played in-class. However, in-class training programs will allow students to share their shopping experience, not only learn to identify counterfeit and inferior products, but also learn some purchasing skills, teach everyone rational shopping, and improve their participation enthusiasm. For example, a classmate compared the differences between shopping websites such as Taobao, JD.com, and Pinduoduo, teaching everyone the methods to identify whether a product is genuine; Some students compared and classified similar products such as sunscreen and shampoo sold in actual shopping malls based on their shopping experience, combined with the knowledge learned and relevant materials consulted, and analyzed the purchasing skills of these products.

4.3. The difficulty level of the practical training project is moderate

Attention should be paid to the difficulty of execution in practical training projects, and teaching requirements should not be the only consideration. According to the principle of "jumping and picking peaches", experimental projects should be of moderate difficulty, too simple to be challenging, and the workload is too large and the requirements are too high, inevitably exceeding the ability range of undergraduate students. It is necessary to take into account the knowledge, experience, and ability level of students. For example, in the part of product qualification assessment and quality supervision, students are required to understand the product inspection procedures and content, master the inspection methods and classification of product grades in terms of knowledge objectives. In the practical stage, it is best to intern at the product quality supervision and inspection institute, experience the work of product quality inspectors, and be familiar with product inspection. However, it is obvious that such practical training projects are very difficult to execute and are not suitable for in-class training. Therefore, the project of this part of in-class training is set as the "Product Standards Discussion Conference". Product standards are the basis for product supervision, and this project is also more suitable for colleagues in marketing and other majors to implement.

4.4. Flexible topic selection for practical training projects

The selection of topics for practical training projects can be done through a combination of teacher provided and student self-drafted approaches. A relatively broad practical training program can be designed, as long as it is related to the course of Commodity Science, and the specific topics can be discussed by the students themselves. Students setting their own questions can increase their participation, help teachers understand their concerns and interests, increase teaching experience, and expand the scope of teaching. At the same time, increasing participation also helps to improve students' operational skills and knowledge mastery, achieving a win-win situation for teachers and students.

4.5. Security considerations for project execution

Safety is no small matter. Although it is an in-class training project, some projects may require external research. Therefore, the design of the training project also needs to consider the safety of student execution. Due to the fact that college students come from various parts of the country, with significant differences in local customs, urban environments, etc., it is important to pay attention to the execution time and methods of projects to ensure student safety. In addition, during the special period of the COVID-19 epidemic, we should pay attention to the epidemic prevention policies of various places and schools, remind students to pay attention to epidemic prevention requirements, and do a good job of self-protection.

5. Implementation of in-class practical training in commodity science

The implementation of in-class practical training in Commodity Science mainly includes the issuance of practical training projects, group reports, teacher feedback, and deepening communication between teachers and students.

Step 1: Issue of practical training projects. After the completion of relevant theoretical teaching, the teacher assigns corresponding in-class practical training projects to the students. For some projects that require extracurricular research, teachers can present case studies or process explanations related to the project to students in the classroom, laying the groundwork for project preparation and enriching students' real-life experiences.

Step 2: Preparation or research after class. According to the requirements of the practical training project, students are divided into small groups to choose corresponding objects outside of class. They can search for information through the internet, library, etc., or choose suitable shopping malls, department stores, supermarkets, etc. to conduct corresponding research, and make a presentation PPT.

Step 3: Group presentation. Each group selects representatives to report on the progress and results of the project, highlighting key points. After the group representative completes the report, other members of the group can supplement and improve it.

Section 4: Teacher comments. Teachers and other group members can ask questions. Based on the report and defense, teachers can summarize and evaluate the completion of the group's projects, affirm the results, and point out shortcomings and directions for effort.

Step 5: Deepen communication between teachers and students. Based on the teacher's feedback, students can reflect and re-examine the shortcomings and problems they have discovered. If necessary, they can engage in in-depth communication with the teacher and seek detailed explanations to solve problems and confusion. Of course, teachers can also be inspired by the project results to ask students expanding questions, guide them to further think, and enhance their understanding of the content of the practical training project[9].

6. Design of in-class practical training project for "Commodity Science"

Based on the teaching experience of Commodity Science, the author has designed some highly operable in-class practical training projects, as shown in Table 1 below. Teachers can choose appropriate practical training projects based on theoretical class hour arrangements and actual situations, or expand on this basis.

Table 1: Design of in-class practical training projects for "Commodity Science"

Practical training projects	Teaching objectives		Training content
	Knowledge objectives	Ability goals	
Product Introduction Conference	Understand some common knowledge about commonly used products; Master the key points of product description and introduction	Can accurately introduce products; Can attract consumer interest and stimulate purchasing desire	Understanding and Introduction of Typical Products
Commodity classification and coding management for commercial enterprises	Understand the principles and methods of product classification and coding; Master the selection of product classification standards and the content of product barcodes	Able to analyze the classification display of commercial enterprise products; Can identify products based on barcode rules; Can complete supermarket tallying	Conduct research and analysis on the rationality of product classification, product code writing, and barcode usage in supermarkets and shopping malls
Product Quality Analysis and Tasting	Understand the connotation of product quality characteristics and the factors that affect product quality; Master the methods of product quality analysis and quality management	Being able to analyze the quality characteristics of commonly used products from different perspectives; Can conduct quality evaluation on different products	Introduce some basic quality requirements for commonly used products; Conduct on-site product tasting
Analysis and Selection of Product Packaging Strategies	Understand the functions of product packaging and the packaging material requirements for the product; Mastering product packaging labeling	Be able to choose reasonable packaging techniques and suitable packaging materials for different products; Can read the corresponding packaging labels	Investigate and understand the materials used for product packaging; Product Packaging Competition and Packaging Logo Painting
Discussion on Product Standards	Understand the classification and level of product standards; Mastering the content and standardized forms of standards	Can use standards to measure product quality; Can analyze the impact of standards on commodity production and consumption, and understand how to seek benefits and avoid harm	Search and collect national and industry standards related to goods (products or services), interpret the content of the standards, and analyze the impact of the standards on the production and consumption of goods
Product anti-counterfeiting activities	Mastering the characteristics of counterfeit and inferior goods	Can identify counterfeit and inferior goods	Identification of counterfeit and inferior goods
Campus “3.15”	Familiar with consumer rights protection regulations	Can utilize quality regulations for consumer rights protection	Recognition and application of regulations on product quality
Shopping experience sharing	Understand the common knowledge of purchasing common products	Reasonably select products	Product selection

The in-class practical training program of "Commodity Science" covers four teaching modules:

commodity cognition, commodity management, commodity supervision, and commodity consumption, with a total of 8 practical training projects. Each practical training project analyzes the teaching objectives of the project from the perspectives of knowledge and ability, and elaborates on the specific training content. Relevant teachers can extend and expand on this basis.

Specifically, the product awareness module includes a "product introduction meeting", the product management module includes classification management - "classification and coding management of commercial enterprise products", quality management - "product quality analysis and tasting", packaging management - analysis and selection of product packaging strategies. The product supervision module (the basis for supervision) includes a "product standard discussion meeting", and the product consumption module includes "product anti-counterfeiting activities", "campus 3.15", and "Shopping experience sharing ".

7. Conclusions

The essence of management is practice, and the ultimate goal of learning theoretical knowledge should be reflected in practice. Improving students' practical abilities is a problem that should be emphasized and solved in management course teaching. As a fundamental course for management majors, Commodity Science is a comprehensive and applied discipline that integrates natural and social sciences. It is a discipline that studies the value and changing patterns of commodity use. During the process of lesson preparation, teaching, and post class extension, teachers should adhere to the principles of cultivating students with moral character and comprehensive education. Based on the teaching syllabus, while the nature of Commodity Science is still a theoretical course, teachers should fully draw on and utilize the research results and teaching practice experience of project-based teaching and flipped classroom, and carry out corresponding in-class practical training according to the content of theoretical courses. This not only changes the teaching format of Commodity Science, but also enhances the teaching effectiveness of the course. In the process of teaching courses in the field of commodity science, students are provided with practical opportunities through scientific design in the practical stage, and scientific and reasonable guidance is provided during the implementation process to cultivate their quality and ability, and improve their knowledge mastery.

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