

Research of case application in the teaching of Food Standard and Regulation Course

Youwei Yu, Juan Zhang

College of Food Science, Shanxi Normal University, Linfen 041004, China

***Corresponding Author:**

Youwei Yu

Email: yuyouweineu@163.com

Abstract: Food standard and regulation course is an important technical management curriculum. Its contents are abstract and obscure. Cases are intuitive and vivid, very suitably integrated into class teaching of Food standard and regulation course. They might be introduced into class teaching through the following methods. Cases were served as lead-in before class, naturally adopted during teaching process, designed into class discussion, used as after-school exercise, or applied as Simulating application scene. The result showed that appropriately applying cases in class teaching of food standard and regulation might enhance learning interest, promote students to solidly grasp theoretical knowledge, and improve their application ability. It is an effective teaching method to adopt cases to assist the teaching of Food standard and regulation course.

Keywords: Food standard and regulation; Case; Pedagogy.

INTRODUCTION

Food standards and regulations are some specifications and requirements with regard to food processing, food logistics and catering [1]. In recent years, food standards and regulations play a more important role with the rapid development of food industry, the expansion of food trade quantity and the enhancement of food safety level [2]. Many new food standards and regulations have been legislated and some original food standards and regulations have been continuously revised [3]. Food standards and regulations course is an important curriculum, offered for the college students of food specialty and belonging to technical management course. Its contents are composed of standardization basic knowledge, laws fundamental knowledge, the main current food laws and standards of China and world, and certification system related with food processing [4]. This course covers all the food processing chains which involves the whole food safety management from farm to table; includes various foods such as vegetables, Cereals and oil, and animal products; contains kinds of food technical standards including product standard, processing standard and detection method standard.

The application of food standards and regulations knowledge is very strong. In food enterprises, many departments such as purchase, production, sales, quality control, testing, logistics, transportation, administration and so on, apply relevant knowledge of food standards and regulations. However, the contents of food standard

and regulation course are relatively boring, obscure and abstract, so college students prone to conflict in psychology [5]. Students only learn by rote and can not flexibly apply the knowledge. This deviated from the original intention of teaching. Facing complicated text, students are not willing to learn through comprehension, which leads bad learning effect. Case has the characteristics of intuition and image. The carriers of case are usually photos, cartoons, videos or drawings, often supplemented by concise text description [6]. Case might regulate the boring atmosphere in the teaching process of food standard. Teacher teaches in a relaxed atmosphere, and students learn in pleasure and effectively grasp knowledge. Thus, teaching effect is enhanced [7]. In this paper, the practical application methods of case in the teaching process of food standard and regulation was investigated. We hope to improve the teaching effect of Food standard and regulation course and cultivate high-quality talents for food specialty.

PRACTICAL APPLICATION METHODS OF CASES IN FOOD STANDARD AND REGULATION TEACHING

Cases were served as lead-in before class, guiding students to learning with interest.

As a famous saying goes, a good beginning is half of success. Through an effective case as lead-in before class, the learning interest of college students might be greatly stimulated. When the fundamental knowledge of law and regulation was taught, the first revision of Food

Safety Law of the People's Republic of China was taken as an example. College students will naturally come out a question why Food Safety Law needs to be revised? Here, teacher showed a series of photos related with food development in recent years, such as food sale through network business channel, the vigorous development of health food, the typical cases of illegal food, the further refinement of food supervision, and so on [8]. Thus, a perception to the amendment background of Food Safety Law gradually formed in students mind. Meanwhile, college students understand that food laws how to adjust the social norms of food industry. How to revise law and regulation? Firstly, revised suggestion was widely collected. And then the revised draft was released. Afterward the draft was amended several times. Finally, the draft was approved promulgated by state authority. After Food Safety Law promulgation, food enterprises carry out production and operation, government staffs effectively enforce the law, and consumers safeguard their rights and interests in accordance with new law requirements [9]. This case covers the drafting and implementation process of law and regulation. Before teaching the formal knowledge, through the brief case, college students might breezily learn the fundamental knowledge of law and regulation during the whole class. And a learning effect with minimum fuss and maximum efficiency realized.

Cases were naturally adopted during teaching process, enabling students to deepen understanding

Some knowledge of food standard and regulation was very abstract, and students can not effectively understand from literal. For example, the selection principles of critical limit in HACCP management system were intuitive, easy to monitor and not to break normal procedure. [10]. Facing these principles, college students were quite confused. However, a better teaching effectiveness might be achieved through a mini case of fried chicken [11]. During frying process, microorganisms need to be effectively controlled to prevent microbial hazards. Traditionally, fried chicken sample was detected in microbiology laboratory. And the test results were acquired at least 2-3 days later. This time is too long, seriously restricting the industrial production of chicken. Here, teacher guided students to analyze frying process. After chicken was fried under a certain temperature for some time, microorganisms of chicken were killed. If microorganisms effectively be killed by controlling particular temperature and time of frying process? This scheme is feasible. During frying process, temperature might be directly observed and time might be measured by stopwatch or other measurement tools. Thus, as long as frying temperature and time were effectively grasped, microorganisms might be effectively killed. Not all batches of samples need to be sent to microbiology laboratory for microbial detection. Only verification experiments were carried out in microbiology laboratory at intervals. Accordingly, time and labor power was drastically

saved. Through this mini case, students might indeed perceive the selection principles of critical limit, namely intuitive, easy to monitor and not to break normal procedure. Moreover, the application of knowledge might be expanded out. Many food processes such as oil-fried potato chips, fruit or milk pasteurization, cooking and so on, might be controlled through particular temperature and time.

Cases were designed into class discussion and the understanding of knowledge was deepened through interaction.

Discussion is an effective way of class interaction. During discussion, college student thinks deeply and then airs his own views. The understanding of knowledge was deepened in interaction, so students might effectively grasp the knowledge. Moreover, through discussion, scattered point knowledge might bunch into a vast expanse of knowledge. The knowledge understanding of connotation and extension was improved. In the teaching of detection method standard, the melamine case of bovine was taken as example. Under the guidance of teacher, students were divided into groups to discuss related contents. Why did some people add melamine into dairy products? In order to supplement the protein content so as to increase the sale price of milk. It was very easy for students to understand the reason [12]. In fact, melamine and protein are not the same substance. Why adding melamine into milk might increase protein content? Now, students began to concern the detection method of protein. Usually, the protein content of milk was detected using Kjeldahl method. Through sulfuric acid digestion, all nitrogen including protein and melamine was converted into inorganic nitrogen. So this method can not distinguish nitrogen originating of or protein melamine. After melamine incident, the original detection method can not be further used and a new detection method needs to be developed [13]. Through this case discussion, students might clearly understand and grasp of a detection method standard involving in detection principle, reagents and instruments, sample processing, specific test conditions, and so on. Especially in the current grim situation of food safety, developing new detection method has great significance to improve food safety level.

Cases were used as after-school exercise, giving students practice opportunities.

Exercise could help students consolidate knowledge. After introducing the cases into after-school exercises of Food standard and regulation course, students might deepen the knowledge learned in classroom. For example, in the teaching of product standard, standard scope, normative reference documents, classification, characteristic requirements, testing methods and appendices were related. Teacher arranged students to design an enterprise standard for certain functional food as after-school exercise. In the

designing process, college students will consider what features the functional food has, what its functional components are, and how to detect its ingredients. At the same time, students also considered the difference between enterprise standard and other standards. Since the prepared standard is an enterprise standard, related nutritional or health items must be stricter than national, industry or local standards [14]. Nowadays, colleges encourage students to take part in practice or innovation. This case might guide students to apply the knowledge learned in the classroom. They initiatively meet the social requirement and learning value was also embodied. Similarly, the manufacture procedure of food processing, food safety and health regulations, or the post requirements of food enterprise might be designed into cases. Students were asked to apply those cases in after-school exercise in combine with the knowledge learned in classroom.

Simulating application scene enabled college students to experience the role of food standards and regulations

In terms of strong application of knowledge of food standards and regulations, we might let students personally on the scene and directly apply the learned knowledge through designing some of simulation cases. In the teaching of ISO9001 quality management system and ISO22000 food safety management system, some contents such as internal audit, management review or defect product recall, could be designed into simulation cases that students participate in as practice [15, 16]. Take internal audit as an example. All students of one class were divided into groups in accordance with the organizational form of food enterprise. And those groups represent different departments of enterprise, such as procurement department, production department, sales department, technical department and quality control department. Meanwhile, the audit team of quality management system was established as well. Teachers guide students to watch some videos that were related with the production process of food factory. In order to facilitate students to deepen the understanding of nonconforming items, some contents that do not conform to food production norms were deliberately set into the watched videos. After watching the videos, students carried out internal audit according to the requirement of quality management system documents. The whole process audit also proceeds as far as possible in accordance with standardization procedure including to hold the first meeting, document review, on-site audit and to issue the audit report [17]. At last, closing meeting was held, illustrating nonconformities detected in internal audit process and audit conclusion. Although the audit was simulated, students might subliminally master the entire process and effectively grasp critical knowledge of quality system management through the whole personally experience.

IMPLEMENTING EFFECTS

Learning interest of students was obviously improved.

After cases were applied in the classroom teaching of Food standard and regulation course, the boring and abstract knowledge was integrated into vivid cases, and classroom atmosphere become active. Students fervidly answered questions and discussed related cases with great enthusiasm, and their learning interest was greatly improved. During the teaching in class, teachers also become relaxed and comfortable with joyful mood and their teaching activity was also significantly enhanced.

Students solidly grasped theoretical knowledge

Substantial parts of food standard and regulation contents are too obscure to understand. Through using cases, obscure theory was integrated into vivid cases, the application of food standard and regulation knowledge was expanded, and the apperception of knowledge was been deepened as well. The acquired knowledge of student was continuously improved and consolidated. Thus, learning effect was enhanced and college students might solidly grasp the theoretical knowledge of food standard and regulation.

Application ability of college students was enhanced.

The goals to learn food standard and regulation knowledge is to apply them in work position in the future. After introducing cases in classroom, complete connection might be realized between learned knowledge and the practical application of job, and graduates might directly apply the knowledge of food standard and regulation in their work position. Some selected cases such as simulation quality management system audit, were the microcosm of food enterprise scenery. College students were systemically trained in school and might use the learned knowledge freely.

CONCLUSION

Given the obscure and abstract of food standard and regulation knowledge, appropriately applying cases in class teaching might enhance learning interest, promote students to solidly grasp theoretical knowledge, and improve their application ability. It is an effective teaching method to adopt cases to assist the teaching of Food standard and regulation course.

Acknowledgements

This work was supported by the teaching reformation project of Shanxi Normal University (SD2014JGKT-42), and by the course group project of Shanxi Normal University (SD2013KCZ-11)

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