

Recent progress on “case study applications” and bilingual teaching in education of food science

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Abstract: Food science courses has developed into an interdisciplinary comprehensive science. Its purpose of running the school is to cultivate the ability to adapt to the needs of modern society and the development of global market economy, with solid foundation and professional knowledge, strong practice and innovation ability, high comprehensive quality, entrepreneurial awareness, ability to engage in food production and technology management, scientific research, new product development, quality control, engineering design, Market development and other aspects of work, for the agricultural industrialization service of composite application-oriented Food senior talents. “Case study applications” and bilingual teaching are the critical teaching methods in food sciences education, which is not enough applied in food sciences teaching. We reviewed the most potential teaching methods with this two teaching means, that could improve the quality of the education for food science.

1. Overview of Case Teaching

Case-based teaching is a series of ways for educators to introduce learners into the context of educational practice according to certain educational purposes and taking cases as basic teaching materials. It can improve learners' decision-making ability and action ability in the face of complex educational situations by means of multi-directional interaction, equal dialogue and active discussion between teachers and students¹. The sum of teaching methods. Compared with traditional teaching methods, in case teaching, teachers have changed from "the main speaker" to "the host" in the field. The mode of teacher-student interaction and student-student interaction enables students to participate more in teaching activities. Comparing with the traditional "one-word-class" classroom model, the heated discussion atmosphere is more conducive to students playing a principal role in learning and encouraging the development of independent learning².

2. The Necessity of Applying Case Teaching in Food Course

Related courses in food science, such as basic biochemistry, food technology, and food materials, have a wide range of knowledge and trivial knowledge. Teachers teaching under the traditional teaching mode can only allow students to passively accept theoretical knowledge, but couldn't lead students to think actively. Introducing case teaching in the curriculum of food specialty can not only consolidate and deepen theoretical knowledge, but also is extremely important for cultivating high-quality applied talents with innovative capabilities.

3. The application of case teaching at the current stage in food courses

3.1 Teaching with teaching aids

There are many complex and abstract molecular and chain reactions in courses in organic chemistry, inorganic chemistry, and basic biochemistry. In order to stimulate students' interest in learning, students' understanding of knowledge points is strengthened. Teachers often use related teaching aids for teaching. For example, when teaching the Maillard reaction in food chemistry, teachers often use the slitted potato as a teaching aid to allow students to observe the color change of the cut surface, thus the browning of the Maillard reaction and The influencing factors are understood by a deeper understanding. The use of teaching aids to make the chemistry of the image of the image, specific, so that the teaching content is simple, students are more acceptable, but also can promote their concentration, generate a strong enthusiasm for learning, exercise students' observation in a good classroom atmosphere Ability to improve the quality of teaching.

3.2 Using concrete examples to teach

Case is the core of Case teaching. One of the most prominent features of Case teaching is case application, which is the key to distinguish case teaching from other methods.[5]The food profession is closely related to human life, and issues such as food safety and epidemic prevention are related to the food industry. Teachers can introduce food safety cases and practical problems in the food production process as examples, combine books and practice, and focus on cultivating students' habit of using theoretical knowledge flexibly, while cultivating students' sense of social responsibility and public awareness². Generally speaking, teachers mainly follow the following steps when using examples to teach (Figure 1).

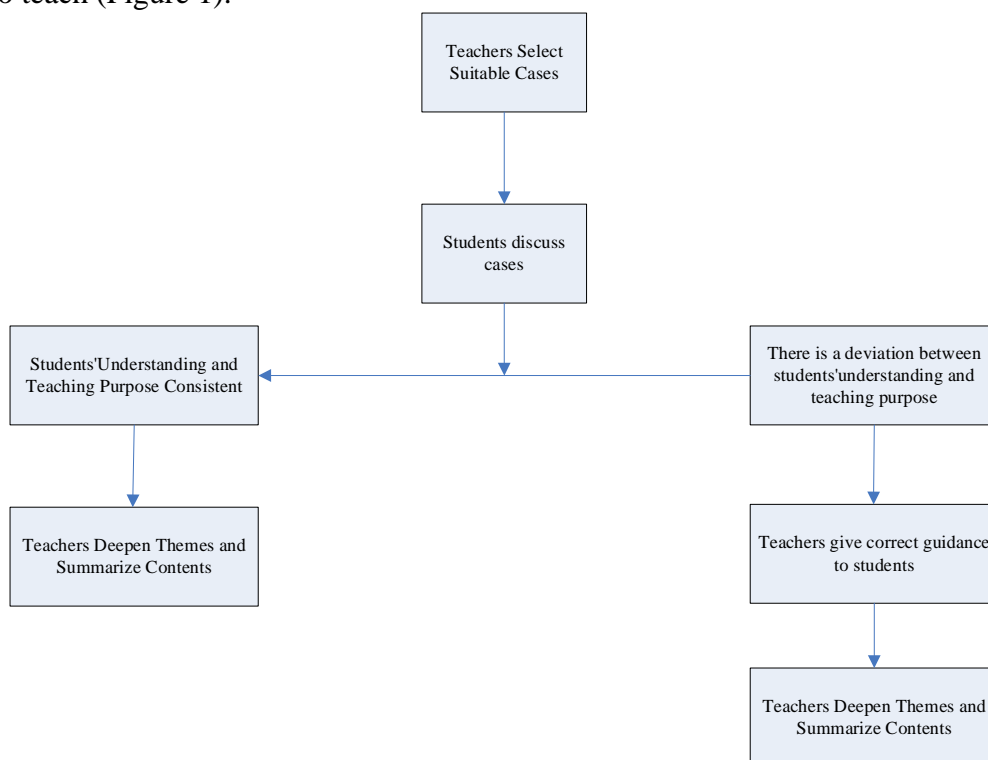


Figure 1. Process of “case study” application

3.3 Using multimedia means for teaching

With the development of science and technology, some teachers have introduced virtual reality technology into the classroom of food specialty, allowing students to intuitively understand food theory. For example, when teaching the chapter on the basic principles of fermented food processing

in food technology, the teacher selects the relevant actual processing flow to make a virtual video, allowing students to understand the whole processing process of fermented food to stimulate students' interest in learning immersively. Strengthen the understanding of theoretical knowledge. In the classroom teaching, a large number of scientific research examples and production practices closely related to the course knowledge points are introduced, and students are discussed and discussed in the form of virtual reality, and a new teaching mode of case teaching is explored and practiced. Through the understanding and discussion of the whole food processing process, it effectively promotes the combination of theory and practice³.

4. Attention should be paid to the problem of case teaching at the present stage

4.1 Teachers should clearly define the purpose of case teaching

Some teachers in the case of selecting cases to facilitate the teaching, instilling knowledge as the main goal, ignoring the rationality of the actual case. Some teachers equated the case with the case, but only discussed the relevant cases of the food industry to the students, but did not listen to the students' understanding of the case. In the long run, it is difficult for students to obtain useful enlightenment. The enthusiasm of case study declines. Teachers have to return to the old path of "scholar-style education" in which knowledge is given, and the innovation consciousness and practical quality contained in case teaching naturally disappear⁴.

4.2 Teachers should correctly select cases

When selecting a teaching case, teachers should pay attention to the timeliness and rationality of the case, and cannot be a "case" and a "case". Today, with the rapid development of the food industry, many of the classic cases of the past are no longer applicable. For example, the famous "Sanlu Milk Powder Incident", the national method for testing the qualification of dairy products has been updated to detect the edible nitrogen content⁵⁻⁶. Therefore, teachers should select cases that are conducive to improving students' practicality and creativity according to the teaching objectives⁷.

5. Prospects for the teaching of case teaching in food specialty

At present, most teachers of food specialty still use the traditional teaching mode in their teaching⁸⁻¹¹. Under the background of promoting the reform of higher education and teaching, many teachers are constantly exploring, making a reasonable analysis of the cases of food and chemistry industry, and selecting the ones that can arouse students' enthusiasm and strengthen students' argumentative thinking. Case teaching is also being vigorously implemented in the food departments of relevant schools to seek a breakthrough in the combination of case teaching and traditional teaching.

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