

# Research on the Talent Fostering Model for Specialty of Food Quality and Safety from the Perspective of National Standard of Teaching Quality

Xiaoqing Yu, Shijie Yan\*  
Tianjin Agricultural University  
Tianjin, China

**Abstract**—Specialty is the basic unit and platform of talent cultivation in Colleges and universities. To improve teaching quality, professional standard are the basis. Based on the national standards for teaching quality, this paper analyses the job requirements in the field of food quality and safety, the problems in the talent training for the specialty of food quality and safety, the requirements of the national standards of teaching quality for the training program for specialty of food quality and safety, and puts forward some suggestions on the talent training model for specialty of food quality and safety, which aims to provide references for talent training of the specialty of food quality and safety in the local undergraduate colleges and universities.

**Keywords**—national standard; specialty of food quality and safety; training model

## I. INTRODUCTION

Since April 2013, the Ministry of Education has commissioned 92 professional teaching steering committees to start the research and development of the *National Standard for Teaching Quality of Undergraduate Specialty in General Universities and Colleges*. For more than four years, at the press conference held by the Ministry of Education in January 2018, the *National Standard for Teaching Quality of Undergraduate Specialty in General Universities and Colleges* was officially released. It is the first issued national standard for teaching quality of higher education to the whole China and world. It covers all 92 undergraduate specialties and 587 majors in the catalogue of undergraduate specialty in general colleges and universities, involving more than 56,000 colleges and universities nationwide.

Xi Jinping pointed out at the National Conference on Ideological and political work in Colleges and Universities that “the development level of higher education is an important symbol of a country's development level and development potential. Our need for higher education is more urgent than ever, and our desire for scientific knowledge and outstanding talents is stronger than ever.” At present, the development of higher education in our country has entered a new stage of improving quality and developing connotation. It has become

the key issue for all colleges and universities that set up the specialty that how to improve the quality of talent training, make the professional talent fostering meet the social needs, change the current situation of food safety in China, and promote the development of food trade in China.

## II. JOB REQUIREMENTS IN FOOD QUALITY AND SAFETY

The specialty of food quality and safety is an out-of-catalogue undergraduate specialty approved by the Ministry of Education in 2001. The specialty of food quality and safety is closely related to the national interest and the people's livelihood. With the rapid development of industry and agriculture and the aggravation of environmental pollution, various risk factors of chemical, biological and physical hazards in food exist to different degrees, which affect people's health and life safety as well as national economic development and social stability. Meanwhile, chronic diseases related to diet are prominent, and the food safety situation is not optimistic. People put forward higher requirements for food nutrition, quality and safety, which leads to the increasing demand for professional talents of food quality and safety in food enterprises. A group of professional talents with strong sense of social responsibility and good professional ethics, skilled in technology and management, can be engaged in food production, analysis and inspection, food quality and safety control, safety evaluation, quality certification, supervision and management, scientific research, etc. in relevant food enterprises, inspection agencies, certification bodies, supervision and management departments and scientific research institutions are urgently needed.

## III. PROBLEMS IN THE TALENT TRAINING FOR THE SPECIALTY OF FOOD QUALITY AND SAFETY

### A. Cultivation Features and Innovation are not Strong

Food quality and safety is a specialty that involves many disciplines such as science, engineering, agriculture, medicine, economics, management and law. However, due to the late start of the specialty, limited conditions and insufficient experience in running schools, most local colleges and

Fund Projects: Key research project on the reform of education and teaching in Tianjin Agricultural University (Project No. 2018-A-24); Research plan project on the undergraduate teaching quality and teaching reform of Tianjin General Colleges and Universities (Project No. 171006103C).

universities carry out professional construction and personnel training in the traditional way, have unclear orientation of personnel training objectives and weak pertinence in the training of students' industry, lack their own personnel training characteristics. Compared with the higher education institutions directly under the Ministry of Education, students' social competitiveness is not strong.

### B. Enrollment Quality is Poor

Local undergraduate colleges and universities have a certain gap with famous universities or old ones in terms of faculty strength, academic level, reputation of running a school and quality of personnel training. When selecting colleges and universities, students attach great importance to the comprehensive strength of colleges and universities, because on the one hand, and it also reflects the level of running universities, but also directly affects the quality of students' education in the future. In the battle for students, local undergraduate colleges are facing more fierce competition.

### C. Faculty is Lacking

Due to the specialty of food quality and safety start rather late, its faculty is relative scarce, and most of the newly introduced teachers are newly graduated Ph.D. or Master. Although their basic professional knowledge is solid, they lack relevant working experience in certain industries and enterprises. The application effect of practical curriculum teaching in food quality and safety specialty is not good, which leads to the disconnection between training students and social needs.

### D. The Construction of Practical Teaching Platform is Insufficient

Practice teaching is an effective way for students to consolidate theoretical knowledge and deepen their learning of theoretical knowledge. It is also an important platform to integrate theory with practice and improve their practical abilities. However, after China's higher education entered the stage of popular education, although most local undergraduate colleges and universities have significantly increased the scale of the school, the number of specialties, and the number of students enrolled. The corresponding conditions for running a school have not been improved correspondingly. Compared with the shortage of teaching resources, hardware and software, the practical teaching conditions cannot meet the needs of personnel training.

## IV. REQUIREMENTS OF NATIONAL STANDARD CONNOTATION OF TEACHING QUALITY FOR TRAINING PROGRAM OF FOOD QUALITY AND SAFETY SPECIALTY

This paper mainly summarizes the training objectives, training standard and professional knowledge system in the *National Standard*.

### A. Professional Training Objectives

The objective of the *National Standards for the Teaching Quality of Undergraduate Specialty in General Colleges and Universities* is to cultivate students with a strong sense of

social responsibility and good professional ethics, to master the basic theoretical knowledge of mathematics, chemistry and biology more systematically, and grasp the basic principles of food science, nutrition and food hygiene, food analysis, food quality and safety control, food safety supervision and management, etc. To be able to engage in food production, analysis and testing, food quality and safety control, safety evaluation, quality certification, supervision and management, scientific research and other work in relevant food enterprises, inspection institutions, certification bodies, supervision and management departments and scientific research institutions, and to have certain comprehensive abilities of independent work, innovative practice, self-development, and international exchanges.

### B. Training Standard

In the *National Standards for the Teaching Quality of Undergraduate Specialty in General Colleges and Universities*, the studying for the specialty of food quality and safety will last for 4 years, and will be awarded a bachelor's degree of engineering, and its total credits are controlled between 140 to 180 credits. Ideological politics and moral education are implemented in accordance with the unified requirements of the Ministry of Education. In the aspects of business, they should master the basic theoretical knowledge of basic disciplines such as mathematics, chemistry, biology, the basic theories and techniques of food science, the basic theories and methods of nutrition and hygiene and food toxicology, the principles and methods of food analysis, the basic theories and methods of food quality and safety control, and be familiar with the food safety standards and regulations as well as the knowledge of food safety supervision and management.

### C. Professional Knowledge System

Professional knowledge system includes knowledge system and practical teaching links, and the knowledge system includes general knowledge, basic knowledge of disciplines and professional knowledge. General knowledge is that in addition to the teaching content stipulated by the state, colleges and universities can determine the teaching content of humanities and social sciences, foreign languages, computers and information technology, sports, and art according to the orientation of running schools and talent training objectives. The basic knowledge of the disciplines mainly includes mathematics, chemistry and biology. Professional knowledge includes professional basic knowledge and specialty knowledge, and the professional basic knowledge and specialty knowledge should be set closely around the training objectives of the specialty. Practical teaching links mainly include curriculum experiment, professional comprehensive experiment, practice, graduation design, scientific and technological innovation training and other forms of experimental practice activities.

## V. CONSTRUCTION OF THE TALENTS TRAINING FOR SPECIALTY OF FOOD QUALITY AND SAFETY

### A. Set Training Objectives and Highlight output Orientation

Set training objectives according to the National Standard for Teaching Quality of Undergraduate Specialty in General Colleges and Universities, first and most basic problem are the orientation. The most basic positioning of "Food safety and professional talents" is "undergraduates", to reflect the basic requirements of undergraduate education. Secondly, local undergraduate colleges and universities should refine their training objectives in accordance with the professional training objectives in the *National Standard for the Teaching Quality of Undergraduate Specialty in General Colleges and Universities*, combining with their own basic conditions and subject characteristics, on the basis of fully investigating and analyzing the characteristics of regional industries and the future development needs of students. Appropriate adjustments are made in credit allocation, curriculum module setting, practical practice, graduation design (thesis), etc. to reflect the professional characteristics of the school and to meet the needs of the national and social development for the diversification of food quality and safety talents. Finally, the local undergraduate colleges and universities should actively meet the needs of economic and social development according to the needs of students' development and the characteristics of the school's disciplines and scientific research, establish the participation of industries and enterprises in the management of schools, scientifically and rationally set the objectives of talents training, improve talent training programs, optimize curriculum settings, update teaching contents, and effectively improve attainment of the talent training objectives, social adaptation and conditional support, to ensure the effectiveness and result satisfaction.

### B. Enrich Teaching Methods and Highlight Student Centers

Local undergraduate colleges and universities should establish and implement the "student-centered" concept of talents training, promote innovation in teaching methods, create an environment for students to grow up and build platforms. According to the characteristics of students, we should teach students in accordance with their aptitude, focus on stimulating students' learning interest and potential, encourage students to widely participate in the teaching process, innovate teaching forms, reform teaching methods and strengthen practice, and promote the transformation of undergraduate teaching from "teaching well" to "learning well". Integrate modern information technology into the classroom, vigorously promote network courses, mu-lessons, micro-lessons, flip-flop classes, and stimulate teachers' teaching enthusiasm, widely use teaching methods and means of heuristic, discussion, problem-based, case-based, inquiry-based, participatory to improve the effectiveness of classroom teaching. Guide students to change their learning concepts and learning methods, carry out research learning and cooperative learning, and cultivate their logical thinking ability and imagination.

### C. Strengthen Quality Assurance and Highlight Continuous Improvement

Establish a sound educational quality assurance system, and implement the goals and effective operation system of the educational quality assurance system to every link. Formulate the examination and evaluation mechanism and incentive mechanism for teaching quality assurance, stimulate the initiative and enthusiasm of grass-roots teaching units in teaching management, and ensure the continuous and effective implementation. Combine normal monitoring with regular assessment, and make timely evaluation, feedback and continuous improvement. Establish a follow-up feedback mechanism for graduates, timely grasp the employment orientation and employment quality of the graduates, job satisfaction and job achievements of the graduates, and employers' satisfaction with graduates. Adopt scientific methods to make statistical analysis of the feedback information of the graduates, form an analysis report, and establish a continuous and prompt mechanism based on the analysis report. Take effective corrective and preventive measures in view of the existing problems and weak links in teaching quality, and make continuous improvement to constantly improve the teaching quality.

### D. Strengthen the Construction of Teachers and Promote Teaching Reform

The *National Standard for the Teaching Quality of Undergraduate Specialty in General Colleges and Universities* requires the number and the structure of the faculty that the students and teachers ratio should be not higher than 18:1, and there should be at least 10 full-time teachers for the newly established specialties. The proportion of full-time teachers with master's degree and doctor's degree is not less than 60%, and the proportion of senior titles is not less than 30%. Local undergraduate colleges and universities should strengthen the introduction of teachers, employ part-time teachers, and constantly optimize the number and quality of teachers; integrate school resources, give full play to the role of teacher development centers, form a complete teacher training system; actively encourage professional teachers to develop into "double-qualified" teachers, strengthen pre-job training for teachers, and carry In-post practice. Actively encourage teachers in school to carry out innovation and entrepreneurship education research, so that teachers' engineering practice ability can be improved. Through scientific and rational organization, leadership and supervision of the "double-qualified" teachers, the number of "double-qualified" teachers will be increased, the structure of the team will be optimized, and the teaching ability and level of teachers will be improved.

### E. Strengthen the Construction of Practical Teaching Platform and Promote the Integration of Production and Education

Education must combine theory with practice. In the teaching process, it is necessary to strengthen the construction of practical teaching platform, further strengthen the construction of specialized laboratories in schools, optimize laboratory resources, update and supplement experimental instruments and equipments, strengthen the construction of

practical engineering centers and platforms of production, study and research bases, and provide necessary equipments for the social practice of college students as well as convenient production space and discussion space. Carry out productive internship training, introduce enterprises into education, improve students' internship training system, encourage schools and enterprises to build and share practice training bases, form a development pattern that education and industry integrate and plan as a whole and positively interact with each other, and perfect the demand-oriented talents training model.

## VI. CONCLUSION

Local undergraduate colleges and universities should take *the National Standard for the Teaching Quality of Undergraduate Specialty in General Colleges and Universities* as a reference, in accordance with the requirements of social development and their own characteristics, take the industry-education integration, university-industry cooperation as the main path, and take serving the local economic and social development as their responsibility to establish appropriate

curriculum system and teaching content, strengthen the corresponding knowledge, quality and ability training, build a new model for talent training under the new situation, continuously improve the level of running schools, and eventually realize the training of high-quality talents in the food industry and the employment competitiveness of talents.

## REFERENCES

- [1] Teaching Steering Committee for Colleges and Universities of the Ministry of Education. National Standard for Teaching Quality of Undergraduate Specialty in General Colleges and Universities (Part 2) [M]. Beijing: Higher Education Press, 2018:861.(In Chinese).
- [2] Zhang Fengxiang, Wang Xia, Zhang Lili, Xue Peng. Exploration of Talents Fostering Model for Specialty of Food Quality and Safety [J]. Education for Chinese After-school, 2018 (3): 89-90. (In Chinese).
- [3] Gu Shengxian, Rao Yingxin. Factors Influencing Enrollment Quality of Local Undergraduate Colleges and Countermeasures, 2016(1):7-10.(In Chinese).