

# ***The Teaching Practice and Exploration of "Literature Retrieval and Thesis Writing" In the Professional Training Mode of "1+4" Whole-Process Quality Management***

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**Abstract**—It is analyzed the insufficient of "literature search and writing" course in food quality and safety professional. Combining "1+4" whole-process quality management professional training mode, the strategies of the teaching practice and reform is presented from the teaching mode, teaching content, teaching methods, students' autonomous learning ability training and teaching feedback. It will enhance the teaching effects of the course.

**Keywords**—literature retrieval; thesis writing; food quality and safety major; course teaching; practical exploration

## I. "1 + 4" WHOLE-PROCESS QUALITY MANAGEMENT PROFESSIONAL TRAINING MODE

According to the feedback survey of existing teaching mode on the students of food quality and security major, tracking investigation on graduates, investigation and study about the Tianjin urban modern agriculture development needs and requirements for food quality and safety major, comparative study of the national food quality and safety professional training scheme and teaching model, it formed the new mode of talent cultivation on food quality and safety major. The mode is taking employment as the orientation and the ability training as the goal. "1" indicates that each student has a professional teacher, the guidance of professional mentor throughout the whole process of a student from entrance to graduation. "4" expressed four stages section management and quality control to the student. The stage 1 is professional education and happy learning. The stage 2 is contact the major and lay solid foundation. The stage 3 is strengthened the professional and master the skill. The stage 4 is comprehensive practice and internship and graduation. Since admission to

practice and thesis reply, personnel and teachers will timely give guidance and help on professional education, professional courses, professional knowledge, professional skills, scientific exercise, practice, graduation thesis, graduation design, etc in each stage. At the same time, professional teacher will provide professional guidance in the whole process. It will give students more humanistic care, professional guidance and ability training, and improve the comprehensive quality of students.

## II. THE TEACHING STATUS OF LITERATURE RETRIEVAL AND THESIS WRITING

### A. *The content is single, the study time is limited, the study interest of student is low*

The course is optional in our school, so there are no ready-made textbooks. At present, the content of relevant teaching material of information retrieval technology are old, and thesis writing teaching materials are mainly about writing norms and skills. So the teaching contents are boring and most used teaching methods, and interest point of students' classroom learning is low. The elective course has 18 hours, one class each week. The teaching methods are mainly taught, and boring in the process of teaching due to the limited class hours. School didn't arrange students to separate computer retrieval, so students cannot get direct retrieval training and knowledge acquisition mostly stay in perceptual level. In this case, the serious disconnect between teaching and practice, the teaching quality of literature retrieval and thesis writing is often difficult to meet the teaching requirements [1], which directly influence the student's subsequent literature retrieval efficiency and the actual effect of thesis writing.

#### *B. Students lack the consciousness of literature retrieval*

The author found that there are quite a few undergraduate students won't be able to use the library provide abundant literature and major home and abroad database information; lack the consciousness of literature retrieval. The main problems are as follows. Firstly, many students use network more for recreation, the consciousness of initiative to obtain and make use of information is not strong. Secondly, it is not familiar with modern retrieval tools such as Internet and professional databases. Thirdly, there are quite a few students are not retrieve the professional literature information, do not use some of the famous database, the operation and practical ability of literature retrieval is not strong. The article format is not standard and unreasonable.

#### *C. Poor information retrieval ability*

The objective of literature retrieval course should be to improve students' information literacy [2], especially to improve students' ability to use information. Most of the students can not make good use of school library resources, or only pay attention to the professional books of knowledge, ignoring degree thesis, patent document, research reports, etc, which had higher information and larger value in the learning content. At present, most students have some basic knowledge and application ability of computer, but they lack the ability to use network to retrieve academic resources. To master the ability of acquiring knowledge is more important than knowledge [3]. When students meet the information demand, most of their first thought is Baidu search tools, rather than the academic search Baidu or some professional database search. The author found that most of the students are not from Tianjin Agricultural University home page to going the library, even if access to the library won't find the books or go to the library home and abroad database for retrieval.

#### *D. Backward teaching mode*

The course teaching still adopts the method of teacher's classroom instruction and students' practice. The literature retrieval and thesis writing teaching usually focuses on the retrieval and use of several well-known databases in China and abroad and the writing format and contribution of the paper. However, the slide show capacity is usually very large. Students lack sufficient time to think and digest, and they lack practical operation. Therefore, they cannot feel the method in their study. The course assessment is still in the form of test paper, the students are focused on rote memorization. The traditional teaching and assessment methods ignore the characteristics of the advanced and practical aspects of the course. Without the practical training, the students had no opportunity on active learning.

#### *E. The course teaching content does not revolve around the teaching objectives*

The students who major in food quality and safety are engineers. There are many differences between engineering teaching and science, and the biggest difference lies in the degree of application and practice. After graduation, graduates will go to the production line rather than research institutes and colleges. For a production line of the engineer, to learn how to

write research papers, how to retrieve sci-tech literatures is indeed necessary, but must not only satisfy in writing scientific papers and retrieve the scientific literature. In addition to relying on scientific research articles, graduates should also use other technology databases, such as patent databases, in the exploration of new technologies. After the formation of new achievements, it is not necessary to publish or publish a scientific paper, but to declare various national patents. The "literature search and writing" course teaching completely does not involve the patent document writing, declare, retrieval work. The other courses also do not involve in the scope of the interpretation of the patent. This actually caused the lack of knowledge in the field after students graduation, is not conducive students to completion "innovative, practical" knowledge system, is unfavorable students to work on the patent application and maintenance related work. Modern enterprises attach great importance to the research and development and protection of new technologies, and the lack of students' relevant knowledge will not be able to do well in this part of the task.

This course has not previously covered the application of various horizontal and vertical projects, and there are no other courses related to the project declaration. At this stage, it is not possible to rely on education funds to train a qualified engineering graduate, which is far more expensive than the vertical allocation of education funds. We can support our teaching and research work by applying for a large amount of funds through vertical and horizontal projects at all levels. From the various public bidding projects of the United Nations to various fund projects at the national level, to various innovative training programs for college students, this has opened the door for us. However, the lack of relevant knowledge of project declaration is a restriction for both teachers and students.

### III. THE TEACHING REFORM AND EXPLORATION OF LITERATURE RETRIEVAL AND THESIS WRITING

In order to stimulate students' interest in learning, improve classroom learning atmosphere, change the teaching status quo, we through the introduction of new teaching content, changing teaching methods to explore a new teaching mode which is guiding with the practice of "living learning".

#### *A. Teaching mode reform*

Based on literature retrieval and thesis writing course characteristics and requirements, the author draw lessons from the success of the other subjects teaching mode, put forward the "theory and practice" teaching mode, which use the multimedia network teaching, strengthen the computer practical operation practice, outstanding the subject status of students.

In the theoretical course, according to the food quality and safety professional requirements, the rational development of literature retrieval and paper writing teaching plan. The teaching content of this course mainly includes two parts. The first part is literature search and the second part is about writing.

The practical training use the multimedia network teaching enhances the teaching efficiency. The traditional teaching

method based on teacher's classroom instruction has not been able to master and skillfully use information retrieval. The author found that there was no concept of the retrieval method of teacher's explanation before the practice was added. Especially after the course is over, students are still unable to use the network retrieval tools skillfully. Therefore, the author reduces the class explanation of traditional retrieval method and arranges the students in the machine room, so as to enable students to master the retrieval methods of various common databases. The author instructs the students to complete the relevant internship, and makes full use of the rich network and library resources to cultivate the students' active learning habit. The author arranges the relevant machine operation content; the student takes the machine operation, and guides the whole process to solve the doubt, through the email to upload the internship report. For example, second computer training is to learn foreign language database, Elsevier ScienceDirect, Springer Link, Wiley Blackwell, computer problems was designed as follows: (1) list three foreign language database website, register Elsevier ScienceDirect, Springer Link, Wiley Blackwell three foreign language database and log in. (2) customize a retrieval course related to this major problem, use Elsevier ScienceDirect, Springer Link, Wiley Blackwell database retrieval, asked to write to retrieve the name of the subject, 5 ~ 10 retrieve records the citations of information (title, author, literature sources). (3) using Elsevier ScienceDirect, Springer Link, Wiley Blackwell database website search published since 2012 essay contains "stay green" of paper, write step search and retrieval results (retrieval results screenshot below). (4) using the Elsevier ScienceDirect database to search for a published article, write the retrieval steps and retrieve the results (a screenshot of the results). (5) using wiley-blackwell database to calculate the paper published by Tianjin Agricultural University since 2008, and write the retrieval procedure and retrieval results (screenshot of the retrieval results).

Literature retrieval and thesis writing practice must be achieved through continuous computer operation and active learning, to guide students to make full use of the network resources and library database resources, combining with the teaching content appropriate arrangement homework. Students are encouraged to use their spare time computer operation.

### *B. Innovative teaching methods*

Due to undergraduate students who seldom contact with scientific research activities, also not to write academic papers, literature retrieval and essay writing without too much sense, therefore, take teachers as the main body of the traditional cramming lectures teaching methods cannot achieve good teaching effect. Through the improvement of teaching methods, the teacher is the main body, the student passively changes to student as the main body, the student actively learns to retrieve and write, let the student bring the problem into the classroom. For example, in the thesis writing section, the author introduced the 5W teaching method model (i.e., Why, What, Who, Where, When) and the five questions are that Why to publish the paper? What does it say? Who needs to write and publish? Where to publish? When to publish? First let the students think, take the specific question to attend the lecture, then the student class speak, then the teacher introduces the

specific knowledge. In the introduction of the main structure of academic papers, the research background, experimental materials and methods, results and discussion sections are dismembered into diagrams, tables and small paragraphs. According to the group's requirement, the students collated a research paper on the above materials, and summarized the research ideas of the whole paper, and wrote the summary and the conclusion part. Then, the group representatives analyzed the "writing experience" of the research papers in this group, and the teachers commented on each one. Through group training and interactive discussion, the writing of the research paper is promoted from the simple level of knowledge to the skill formation mode [4]. In the literature retrieval part, the database is used, the retrieval method and the retrieval logic expression are written, and then the specific retrieval problem is given, so that the students can practice with the problem after class. Through the above problem-oriented teaching method improvement, students can quickly memorize and flexible application the knowledge they have learned, and the efficiency of learning has been greatly improved.

### *C. Strengthen the cultivation of students' autonomous learning ability*

"To teach a fish, is better than to fish", its fundamental requirement is to cultivate students to master the art of learning and the ability of autonomous learning, the core should be to cultivate the students' innovation spirit and practice ability. Therefore, teachers are no longer the indoctrinators of knowledge, but guide students to learn and explore independently. In the process of teaching, through changing the traditional teaching mode of "cramming education", through the case of retrieval and writing teaching, students discuss and homework exercises, such as paper between team mutual form active classroom atmosphere, arouse the enthusiasm of the students to learn the course, make students on the course evaluation is better. For example, after the introduction of the main structure of literature retrieval training and thesis writing, it is possible to carry out the classroom teaching of science and technology paper writing [5]. Through the use of a representative scientific research paper, students were guided to carry on the transposition thinking. The students themselves in dealing with how to design and writing essay writing, especially in the introduction part how cohesion between paragraphs and paragraphs, how logic, how to explain the research background, significance, purpose, content and so on. Although most students can master the basic knowledge of literature retrieval and writing scientific paper points, but the written disconnect with the practical application of knowledge, the students lack of thesis writing skills training and practical training. Therefore, the author suggested that for aspiring engaged in scientific research, graduate school of the students in the future, can be encouraged with interest, questions into the laboratory, and under the guidance of the teacher start some research topics, from begin to exercise his literature retrieval. After the experiment to obtain a certain amount of data, students can try to write academic papers. According to the application practice exercise of the literature retrieval-writing knowledge from books, the students' ability of autonomous learning can get very good training.

#### *D. Formulate the assessment plan for the achievement of both theory and practice*

Since literature retrieval and thesis writing is a practical and highly applied subject, it is necessary to develop an assessment plan that highlights the characteristics of practice. The final grade assessment shall consist of theoretical and computer examination, respectively accounting for 50%. The computer examination includes two parts. One is complete a computer training exercises, two it is to let the students choose their research topics of interest, and write a review paper in accordance with the requirements of Tianjin Agricultural University of graduation thesis.

#### *E. Teaching feedback*

The feedback of course is an important part of curriculum construction. Through the teaching feedback, we can timely understand the student's learning effect, solve the problems in the teaching process, make up for the deficiency of the teaching, improve teaching level unceasingly, so as to improve teachers' quality [6]. Through to let the students write opinion, after-school teaching communication and chat, QQ and WeChat interaction in a variety of ways such as teaching feedback, we understand a student need to be paid attention to the demand of the teaching content and teaching and improvement, to help teachers to the teaching reform, further enhance the teaching effect.

### IV. CONCLUSION

Through the practice of teaching, enriching and updating of teaching contents, innovation of teaching methods and means, the students will learn new literature retrieval and thesis writing theory and will apply to the concrete practice to achieve the purpose of their major. It will cultivate the ability of students to discover, analyze and solve problems, to mobilize the

enthusiasm of students, stimulate the students' interest in learning, and promote the cultivation of the students' active learning ability. It also will improve the quality of teaching, received good teaching effect. In the future teaching, we should continue to explore and summarize the experience to further improve the teaching level and effect

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#### REFERENCES

- [1] J. Xu, and J.H. Y, "Construction of Practice-oriented Teaching Model for Scientific Papers Writing," *Education and Teaching Research*, vol.26, pp. 93-95, December 2012. (In Chinese)
- [2] Y.M. Liu, L.M. He, Y. Teng, and Q.Z. Peng, "On the Teaching Reform of the Retrieval and Application of Documents Course in high education," *Library Journal*, vol. 22, pp. 67-70, 2003. (In Chinese)
- [3] X.Z. Sui, Y.Z. Li, and W. Li, "Reflections on Strengthening the Teaching of Document Retrieval Course in Graduation Thesis," *Information Research*, vol.01, pp. 88-90, January 2012. (In Chinese)
- [4] Y.G. Qiao, Y.B. Niu, J.P. Liang, and Y. Song, "Exploration on Teaching Reform of Experiment Teaching of Medicinal Plant Cultivation," *Light Industry Science and Technology*, vol.01, pp. 132-133, January 2017. (In Chinese)
- [5] Z.Q. Liu, "Study on the teaching methods of Reading and Writing of Science and Technology Papers," *Wireless Internet Technology*, vol.21, pp. 97-98, November 2016. (In Chinese)
- [6] L.Y. Song, "Probe into the Literature Retrieval Course of Biological Engineering Major," *Sci-Tech Information Development & Economy*, vol.24, pp. 141-143, January 2014. (In Chinese)