

Discussion on Improving the Quality of Undergraduate Graduation Thesis of Chemistry Specialty Combined with the Innovation and Entrepreneurship Training

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Abstract: In order to improve the quality of undergraduate graduation thesis of chemistry specialty, the combination of college students' innovation and entrepreneurship training and the graduation thesis is discussed in this paper. According to the current situation and existing problems, we analyze and put forward corresponding strategies and suggestions to improve the quality of undergraduate graduation thesis of chemistry specialty. The advantages in improving the quality of undergraduate graduation thesis of chemistry specialty are also analyzed according to the combination with the innovation and entrepreneurship training.

Keywords: Innovation and entrepreneurship, Quality of undergraduate graduation thesis, Chemistry specialty

1. Introduction

Undergraduate graduation thesis is the last practical compulsory course in the talent training program of colleges and universities. It is also a comprehensive test, summary and improvement of students' four-year university learning achievements^[1]. It has the characteristics of high credits, long class hours, strong practicality and comprehensiveness. The role and status of graduation thesis can not be replaced by other practical teaching links in the whole university teaching process. It not only exercises students' ability of writing, but also cultivates their ability to find and solve problems, think independently, explore and apply innovation.

Chemistry is a subject based on experiment, which has the characteristics of strong applicability, strong practicality, long experimental process and heavy workload^[2]. Graduation thesis of chemistry specialty is an important link to train students' innovative and practical ability. Paying close attention to this link will help students make comprehensive use of chemical professional knowledge and operation skills and improve their ability to solve practical problems. The innovation and entrepreneurship training of chemical college students pays more attention to students' learning subjectivity and the flexible application of their mastered knowledge, so as to expand the theoretical knowledge of classroom learning, increase the depth and breadth of classroom learning and enhance their practical experience. Combining college students' innovation and entrepreneurship training with undergraduate graduation thesis will greatly improve the quality of graduation thesis of the students' majoring in chemistry, comprehensively improve their innovation and practice ability, and then improve their employment competitiveness.

2. Current Status and Existing Problems

In recent years, with the expansion of enrollment in colleges and universities, elite higher education is constantly changing towards popularization, and the comprehensive quality of college students is also declining year by year. Due to the limitation of teachers in colleges and universities, the number of graduation theses guided by them has increased significantly, resulting in the limited guidance time allocated to each student. At the same time, senior students still have the influence of many factors such as postgraduate entrance examination and employment, resulting in the low quality of the graduation

thesis.

According to the preliminary investigation of the previous undergraduate graduation theses of chemistry specialty in our college, we find that the main reasons for the decline of the quality of graduation theses are as follows:

2.1. Students Have Insufficient Time, Lack Practical and Innovative Ability

Like most other ordinary undergraduate colleges and universities, the graduation thesis of chemistry specialty in our college starts from the 8th semester. Students are facing the pressure of employment, postgraduate entrance examination and civil servant examination at the same time. It takes up a lot of time to participate in job fairs and interviews, which makes it difficult for students to calm down and seriously deal with the tasks of graduation thesis. On the other hand, most teachers teach by means of theoretical explanation, and the classroom has become a platform for simply imparting basic theoretical knowledge. Classroom teaching has more theoretical knowledge and less practical teaching knowledge, which makes students feel that there is a serious gap between theoretical teaching and practice in the classroom. The students can not further understand and master the theoretical knowledge through practice, which makes them lose interest in the study of practical courses, and then leads to the decline of the quality of graduation thesis of chemistry specialty.

2.2. The Work Pressure of Instructors is High and the Degree of Attention is not Enough

Young teachers with good educational background are the main force of the college teachers. As excellent talents introduced by the college, they have heavy scientific research tasks to complete in the short term. In addition, they should also act as professional course teachers, counselors and college students' project instructors, which requires a reasonable allocation of their time and energy. While doing the above work well, young teachers also have to undertake the guidance of the practice courses of graduation thesis, which leads to the insufficient guarantee of communication time between teachers and students, and the great decline in the implementation and progress of students' graduation thesis tasks assigned by teachers, which is also an important reason for the decline in the quality of graduation thesis of chemistry specialty^[3]. On the other hand, some instructors do not grasp the topic selection of graduation thesis, and do not fully realize the importance of the combination of topic selection and the cultivation of students' practical ability and innovation ability, resulting in little significance of topic selection and affecting students' interest in graduation thesis. Individual instructors do not have a strong sense of responsibility, do not have strict requirements for students, and pay attention to theoretical teaching and despise practical teaching, which also leads to the decline of the quality of graduation thesis of chemistry specialty.

2.3. The Opening Audit Mechanism of Colleges and Departments is not Perfect, and the Practical Funds Invested by the College are Insufficient

According to the preliminary investigation, it is found that there are widespread phenomena of "emphasizing theory and neglecting practice" in the topic selection of chemistry graduation thesis. The college also has the problem that the teachers only formulate the topic of the thesis, and lacks the audit process of the college and department on whether the research content of the thesis is reasonable, whether the research content is simple, and whether it is conducive to improving the students' practical innovation ability. In the topic selection link of the graduation thesis, the college and department lack an effective audit mechanism^[4].

Chemistry graduation thesis is written on the basis of a large number of experimental data and the high quality graduation thesis must require high-quality experimental support. The use of experimental reagent, consumables and experimental testing instruments requires funds, while the college has less investment in practical funds. The above influencing factors of colleges and departments also lead to the decline of the quality of graduation thesis of chemistry specialty.

3. Measures to Improve the Quality of Undergraduate Thesis of Chemistry Specialty Combined with Innovation and Entrepreneurship Training

Through the above analysis of the current situation, we find that many factors have led to the decline of the quality of graduation thesis of chemistry specialty in recent years. We propose

corresponding solutions to the above problems, and the following measures can be taken:

3.1. Combined with the Innovation and Entrepreneurship Training, the Topics of Graduation Thesis are Arranged in Advance to Cultivate the Ability of Practical Innovation

In view of the problems that senior students are short of time and lack of innovation ability in the 8th semester, which affect the quality of graduation thesis, we plan to layout in advance through various colorful innovation and entrepreneurship activities carried out in the early stage, broaden students' horizons, and effectively guide them to combine theoretical knowledge in class and books with innovation and entrepreneurship practice to improve their innovation ability. Sophomores and juniors are encouraged to choose topics they are interested in, actively apply for provincial or national College Students' Innovation and Entrepreneurship Training Program Projects, and invite teachers with relevant research backgrounds for guidance. In this way, when starting the topic selection of graduation thesis in the 8th semester, they can discuss the topic and research content of graduation thesis with their instructors in combination with the innovation and entrepreneurship training program, actively participate in the topic selection of graduation thesis, experimental data collection, experimental results discussion and other links, and cultivate their own practical ability, innovation ability and comprehensive quality.

3.2. Linkage of Teachers' Scientific Research to Improve the Enthusiasm of Graduation Thesis Instructors

We plan to link teachers' scientific research, enable students to widely participate in scientific research activities as soon as possible, and combine teachers' scientific research with graduation thesis, so as to achieve a win-win goal. We will further carry out the innovation and entrepreneurship training program for college students. The teachers' scientific research laboratories are open to the innovation and entrepreneurship training program and graduation thesis practice courses, support students to participate in social research, scientific and technological activities and various innovation and entrepreneurship competitions, enrich the existing forms of graduation thesis, and allow the integration of scientific research papers, patents, subject competition works or small inventions to transform into graduation thesis topics. Students are encouraged to transform the project of innovation and entrepreneurship training plan into graduation thesis topics. On the one hand, students have received teachers' long-term guidance and improved their scientific research and innovation literacy. On the other hand, it also stimulates the enthusiasm of graduation thesis instructors, which is more conducive to the improvement of the quality of graduation thesis of chemistry specialty.

3.3. Strengthen the Examination and Supervision of the Topic Selection of the Graduation Thesis of the College and Department, and Improve the Guarantee of College Funds

Students majoring in chemistry are encouraged to apply for various types of scientific and technological innovation and entrepreneurship training programs actively at all levels by relying on the scientific research resources of the college, and further combine them with the topic selection of their graduation thesis. At the college level, we should strengthen the audit and supervision, ensure the quality of the topic selection of the graduation thesis, and eliminate the phenomenon of "emphasizing theory and neglecting practice". Students and teachers are strictly required to archive graduation thesis process records to ensure the authenticity of data. The college strictly implements the mid-term inspection system and mid-term inspection summary. At the college level, it is recommended to increase the investment in the guidance of the graduation thesis chemistry specialty to solve the problems of expensive drug purchase and instrument testing, long experimental time and high consumption. At the same time, teachers are encouraged to invest the relevant funds of the scientific and technological innovation and entrepreneurship training programs for college students at all levels under their auspices into the graduation thesis work, which can effectively supplement the college's financial investment and provide a guarantee for the high-quality completion of the chemistry graduation thesis.

4. Advantages of Improving the Quality of Graduation Thesis of Chemistry Specialty Combined with Innovation and Entrepreneurship Training

4.1. The Topic Selection of Graduation Thesis Combined with Innovation and Entrepreneurship Training Can Stimulate Students' Enthusiasm

The innovation and entrepreneurship training program for college students is generally selected by students themselves according to their interest, which greatly increases students' enthusiasm. Teachers can combine the relevant innovation and entrepreneurship training topics with the topic selection of graduation thesis, so as to naturally mobilize students' enthusiasm for graduation thesis course. With the drive of interest, it is more likely to obtain good experimental data, so as to improve the quality of the graduation thesis of students majoring in chemistry.

4.2. The Topic Selection of Graduation Thesis Combined with Innovation and Entrepreneurship Training Makes Students Have More Time

Most of the students participating in the innovation and entrepreneurship training program are sophomores and junior students. They have no pressure on postgraduate entrance examination and employment. If the topic selection of the graduation thesis in the 8th semester is combined with the innovation and entrepreneurship training program, it will enable students to enter the learning practice of graduation thesis course one to two years in advance, which will give them more time to complete the relevant experiments of graduation thesis course, get better experimental data, and then improve the quality of the graduation thesis.

4.3. The Innovation and Entrepreneurship Training Project Can Supplement the Experimental Funds of the College for the Graduation Thesis

High quality graduation thesis of chemistry specialty needs high-quality experimental data support, while the use of experimental reagents, consumables and experimental testing instruments requires a lot of funds, and the college is lack of financial support. The innovation and entrepreneurship training program for college students in Shandong Province generally has a financial support of 5000 RMB (the national projects having higher financial support). These funds are enough to support the needs of graduation thesis topics of one or two graduates. Together with the special funds for graduation thesis allocated by the college, they can provide guarantee for the smooth development of graduation thesis courses. With sufficient experimental funds, the quality of graduation thesis of chemistry specialty will be greatly improved.

5. Conclusions

The graduation thesis course of chemistry specialty is an important practical compulsory course for talent training in colleges and universities. It is of great significance to improve students' comprehensive quality. The combination of innovation and entrepreneurship training and traditional teaching methods at the college stage can stimulate the enthusiasm of students and instructors at the same time, enable students to spend more time on graduation thesis, further improve the insufficient investment in practical teaching, form a rigorous teaching system and improve college students' innovation and entrepreneurship ability, so as to promote the improvement of the quality of graduation thesis of chemistry specialty.

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