

Problems and Suggestions on Graduation Design of Higher Vocational Colleges

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Abstract

Higher vocational colleges are an important base for cultivating technical applied talents. With the rapid growth of society's demand for technical application talents, in recent years, higher vocational colleges are also expanding their enrollment year by year. Enrollment expansion will bring about problems such as the quantity of teachers to keep up, thus affecting the quality of student training. Graduation design is the key manifestation of the quality of higher vocational education. Combined with teaching practice and relevant literature research results, this paper deeply analyzes the influence of teacher resources, internship and employment arrangements and plans, graduation design topic selection, graduation design process management, and graduation design evaluation system on the quality of graduation design. Accordingly, four suggestions are put forward to improve the quality of graduation design. It is hoped that these suggestions can help improve the quality of graduation design and vocational education.

Keywords

Quality, Graduation Design, Vocational Education, Higher Vocational Colleges

1. Introduction

Vocational education is a new type of education gradually developed in the modern industrial age (Zhang, 2018; Du, 2021). It can not only solve the problem of opportunities for higher education, but also solve the problem of labor force and employment, and improve the quality of human resources (Wang & Wang, 2021).

With the development of China's economy and society, there is an increasing

shortage of technical applied talents, which will directly affect the production scale and quality of products, industrial development and international competitiveness. Therefore, China needs to “vigorously develop higher vocational education”.

According to relevant literature (Yang et al., 2010), in the 10 years from 1998 to 2008, nearly 11 million graduates from higher vocational colleges were trained in China, which delivered a large number of skilled workers for various industries and promoted the national economic construction and social development. All the graduates and skilled workers have been highly recognized by the society. In 2016, the enrollment scale of higher vocational colleges in China has exceeded half of the total enrollment scale of higher education (Zhao, 2016).

However, one of the problems brought about by the expansion and rapid development of higher vocational education is the quality of training, which can be reflected in the quality of graduation design (Tu, 2009). According to a survey conducted by Hunan International Business Vocational College on 64 higher vocational colleges in Hunan (Peng, 2016), among the 2722 three-year vocational graduates in 2015, only 2522 reached the qualification standard (60 points), and the overall qualification rate is only 90.9%. In 2008, the Jiangsu Provincial Department of Education conducted a random check on the graduation designs (thesis) of 20 higher vocational colleges, showing that the pass rate was as low as 24% (Guan et al., 2011).

Graduation design is the key embodiment of the quality of higher vocational education, a “practical exercise” to cultivate students’ vocational skills, and a necessary procedure to comprehensively check the quality of teaching (Tu, 2009). Therefore, how to improve the quality of graduation design is a problem that must be faced in skilled workers training in higher vocational colleges.

Combined with teaching practice and relevant literature research results, this paper deeply analyzes the influence of teacher resources, internship and employment arrangements and plans, graduation design topic selection, graduation design process management, and graduation design evaluation system on the quality of graduation design. Accordingly, four suggestions are put forward to improve the quality of graduation design. It is hoped that these suggestions can help improve the quality of graduation design and vocational education, and further alleviate the shortage of skilled talents in modern society.

2. Factors Affecting the Quality of Graduation Design

According to the current research results, the following five factors mainly affect the level of graduation design in higher vocational colleges:

1) Insufficient teaching staff and heavy task for teachers

With the rapid increase in the society’s demand for applied technical talents, the rapid development of the number of vocational colleges, and the rapid expansion of the enrollment scale of vocational colleges, the shortage of vocational teachers has become a very common phenomenon (Tong, 2018; Li, 2017). Due to the serious imbalance of the teacher-student ratio, some teachers have to

guide as many as 20 to 30 graduates (Li, 2017). In addition to guiding students' graduation design, the teaching tasks of higher vocational colleges are generally much more arduous than that of undergraduate colleges. In addition, there may also be scientific research or guiding students' competitions, so the time and effort of teachers spent on each student's graduation design is very limited, and it is difficult to guarantee the quality of guiding students' graduation design.

2) Graduation design influenced by internships and employment

Generally, higher vocational colleges arrange their graduation design in the sixth semester (Ren et al., 2015), which is also a time for internships, job hunting, or busy vocational-to-undergraduate promotions, and there will be a certain time conflict. Internships, job hunting, and promotion to colleges are time-consuming and tiring, and students do not have the time, mind, and energy to focus on graduation projects, so negative responses, plagiarism, and cheating are inevitable (Zhao, 2016; Guan et al., 2011). Literature (Zhang, 2014) once conducted a survey on a total of 300 people in 6 majors and 8 classes in a vocational college. The results showed that more than half of the students surveyed believed that there was plagiarism.

3) Monotonous topics and not close to practice

Because a teacher in higher vocational colleges usually guides multiple students to carry out graduation projects, and students may have various jobs in the future, due to the limitation of majors and time and energy, the topics that the instructor can choose for students are very limited. There will be a single topic selection that does not match the future job position (Tu, 2009; Cai, 2012). When there is a big difference between the selected topic and the student's future job position, the student will find it too difficult or uninterested, which will easily lead to negative and contradictory emotions. In order to make a submission, the students can only bite the bullet or copy blindly, which make the quality of graduation design impossible to be good.

4) Loose and irregular management

As the employment situation has become more and more severe in recent years, many vocational colleges, in order to pursue the employment rate, manage the graduation design in a mere formality. As long as a student finds a job and submits a graduation project, he will rarely be disqualified for graduation because of his graduation project failure (Tong, 2018). Therefore, management has become a decoration, guidance has become a form, and graduation debate has become a formality show (Cai, 2012; Meng et al., 2011). Under such a background, many students do not pay attention to the graduation project, respond negatively, and finish it in rush, so the quality of the graduation project cannot be guaranteed.

5) Irregular and scientific performance evaluation

Although when many higher vocational colleges evaluate the graduation project grades, they will divide the evaluation into several stages in the form of guidance process grades, review grades, debate grades, and even practical grades (Chen & Zhang, 2014), but in practice it may not necessarily be strict. For exam-

ple, in some vocational colleges, there may be only one instructor responsible for the debate, and the debate process is random. The debate results are also highly subjective, and the final results are unfair (Tong, 2018). Or in order to allow students to graduate and find job smoothly, teachers do not follow the norms when evaluating grades, and even finish graduation projects for students (Tong, 2018).

3. Suggestions and Countermeasures to Improve the Quality of Graduation Design

According to the problems existing in the graduation design of higher vocational colleges, combined with the teaching practice of higher vocational colleges, four measures are suggested to improve the quality of the graduation design of higher vocational colleges.

3.1. Strengthen School-Enterprise Cooperation to Solve the Shortage of Teachers and Monotonous Topics

The implementation of school-enterprise cooperation can not only solve the problem of insufficient teachers for guiding graduation design in colleges, but also solve the problem of monotonous topic selection and graduation design projects separated from the actual work position. Haidian Day University has a good exploration in school-enterprise cooperation (Yang, 2002). As early as 2002, its Institute of Technology arranged for a total of 514 students from 14 majors and 16 classes of grade 99 to go to more than 200 enterprises and institutions in Beijing for graduation internship and graduation design at the end of the last semester of their junior year. All the students' graduation project topics come from real work practices and are linked to work, which not only improves the quality of the graduation project, but also improves the students' vocational skills. At the same time, when teachers go to companies to guide students or ask company personnel to explain to students, they also learn a lot of practical knowledge, which is conducive to the growth of "double-qualified" teachers.

The study on the practice of Haidian Day University suggests that arranging students doing their graduation designs in company can not only make graduation design more practical, but also mitigate the problem of the shortage of instructors and monotonous topics.

3.2. Prepare for Graduation Design in Advance to Reduce the Impact of Internship and Employment

As mentioned above, in general, higher vocational colleges arrange their graduation design in the sixth semester (Guan et al., 2011). At this time, it is also a time for internships, job hunting, or busy vocational-to undergraduate promotions, and there is a certain time conflict. In order to alleviate this contradiction, the general practice of higher vocational colleges is to arrange the graduation design in advance and teach relevant courses in advance. For example, Yunnan Vocational Institute of Energy Technology (Tu, 2009) arranged the assignment of

graduation design tasks in advance to two months after the start of the fifth semester. They believe that at this time, most of the professional courses have been completed, and a few professional courses are still in progress, which can achieve the effect of “learning with problems, learning for practice”. There is doubt about the usefulness of the knowledge learned and one’s own ability, the emergence of the graduation project can just get rid of this emptiness and confusion. Jiangsu College of Engineering and Technology (Cai, 2012) offers courses related to graduation design in the 5th semester, such as the writing of “Science and Technology Papers”, and let students start to search for materials, select topics, program design, etc. In this way, at the beginning of the sixth semester, students can complete the “Proposal Report” in combination with the internship position, and quickly enter the state of graduation design, which provides a guarantee for the quality of graduation design.

The investigation of some college’s experience shows that the second half of the fifth semester is a fair good time for doing graduation design, for at this time, most of courses are almost finished and internship and job hunting are not yet formally started. If colleges can offer some courses related to graduation design in the 5th semester, it will be more helpful.

3.3. Improve Relevant Documents and Strengthen Management

In terms of improving the documents, it mainly includes two aspects: technical guidance documents and management documents. For example, Jiangsu College of Engineering and Technology (Cai, 2012) organized a graduation design guide by the school and each department according to the characteristics of the major, clarified the tasks and requirements, and then gave targeted explanations and training to teachers and students, avoiding the blindness of graduation design. On the other hand, Chuzhou Polytechnic (Meng et al., 2011) established a “four-aspect and four-stage” graduation design quality supervision system in response to teachers’ lax requirements, despising process management, and formalism of defense. That is to say, in terms of management organization, four management levels, namely, the leadership office of the school, the teaching affairs supervision office of the school, the leadership group of the department, and the instructor have been established. In the management process, four stages of quality monitoring are implemented: the early stage, the middle stage, the later stage and the follow-up stage. The supervisors and monitoring tasks of each stage are different, and the four stages complement each other. The practice of the institute has proved that the “four-aspect and four-stage” supervision system clarifies their respective responsibilities, mobilizes the enthusiasm of each person, trains students’ abilities, cultivates the spirit of innovation and unity and cooperation, and achieves the purpose of improving the quality of graduation design.

The successful graduation design management examples tell us that departments at all level, including college level, department level, office level and in-

structor group level should take actively part in graduation design management, and the management should cover all stages of graduation design, for example the early stage, the middle stage, the later stage and the follow-up stage. For efficiency and effectiveness, all the management rules should be existing in document form.

3.4. Scientific and Standardized Performance Evaluation System

In order to truly reflect the quality level of graduation design and play a positive role in guiding the quality of graduation design, many higher vocational colleges have conducted research and exploration on the evaluation system of graduation design. For example, Guangdong Engineering Polytechnic (Zhao et al., 2011) divides the assessment system into three parts: professional behavior assessment, formative assessment and professional knowledge assessment, each of which accounts for 10%, 70%, and 20% of the total score. The results of the professional behavior examination and formative assessment are determined by students' self-evaluation, group mutual evaluation and instructor evaluation. Among them, students' self-evaluation and group mutual evaluation each account for 20%, and the comprehensive evaluation of instructors accounts for 60%. Instructors are composed of school instructors and corporate instructors, each with half the weight. The Guangzhou Light Industry Technician College (Wu & Tan, 2016) also explored a similar student-based self-evaluation and mutual-evaluation performance evaluation system. Compared with the general traditional evaluation system, these evaluation systems have considered more influencing factors and added more participants, and the evaluation results will be more objective, fairer, and more just.

Research shows that a scientific evaluation of graduation design should reflect the real level of students. This evaluation system requires multi-part and multi-level participation in different forms, including students' self-evaluation, student group mutual evaluation, and instructors from college and company evaluation.

4. Conclusion and Prospects

Based on our study, the following conclusions can be drawn:

- 1) With the development of globalization, economy and society, a huge demand of skilled workers is created. Developing vocational education is a good way to help to meet this demand.
- 2) The rapid development of vocation education poses a great challenge to the vocational education quality. The quality of graduation design is a key index to measure the quality of college education.
- 3) The challenge posed to improve the quality of graduation design includes insufficient teachers, conflict of schedule between graduation design and other tasks, lack of diversity and practice of graduation design, unscientific management and evaluation.

4) The challenge of improving graduation design can be eliminated to a certain degree by taking some measures such as conducting graduation design in companies, scheduling graduation design in the second part of the fifth semester, which is a gap between almost finishing school courses and the beginning of internship and job-hunting, establishing graduation design management rules and documents covering all stages of graduation design by all level of departments collaboratively, and introducing a comprehensive evaluation system participated by multiple parts, including students themselves, classmates, instructors from college and companies, etc.

At present, although there are many studies on how to improve the quality of graduation design in higher vocational colleges, and a lot of research results with reference value have been formed, many of them are still in the initial stage of experimentation. In addition, the specific conditions of various vocational colleges in different regions are also different, and whether various existing achievements are suitable for each vocational college needs further practical verification. Therefore, higher vocational colleges still need to carry out in-depth research on the quality control system of graduation design with their own characteristics and in line with their own actual conditions.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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