Applied Undergraduate Thesis (Design) PDCA Total Quality Management System Research

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Abstract: In order to improve the quality of application-oriented undergraduate graduation thesis (design) (hereinafter referred to as "graduate thesis") and explore the management issues in the implementation process of graduation thesis, this paper studies the overall quality management system of undergraduate graduation thesis based on the PDCA model. Combined with the characteristics of applied talents training, the implementation process of undergraduate graduation thesis is deeply analyzed, the key links affecting the quality of graduation thesis are found out, the ways to improve the quality of graduation thesis are explored, and the quality management indicators of the whole process from topic selection to defense are established system. Through practice, various indicators have been objectively and comprehensively inspected in this study. This study has strong guidance and reference value for the management of future graduation thesis (design).

1. Introduction

In recent years, the state has issued a series of documents, requiring all colleges and universities to implement the fundamental task of cultivating talents, comprehensively improve the quality of education, strictly enforce academic standards, strengthen the management of the training process, implement random inspections of undergraduate graduation thesis, and ensure the quality of graduation exports. Based on the background of new engineering, this paper establishes the quality management system of application-oriented undergraduate graduation thesis, and provides reference and reference for improving the quality of graduation thesis in an all-round way.

2. Analysis of the status quo of quality management of graduation thesis

At present, the quality management of graduation thesis in most colleges and universities can be divided into four stages:

The first stage: improve the quality standard. At this stage, relevant documents such as the graduation thesis management measures are mainly formulated to clarify the school's overall standards and requirements for the graduation thesis.

The second stage: standardize the quality management process. Each teaching unit formulates detailed rules for the implementation of graduation thesis, standardizes the management process of graduation thesis, and clarifies the time nodes of each key link and the responsibilities of relevant

personnel.

The third stage: organize and implement quality management. Organize and implement the entire process from the double selection of graduation thesis to the final completion of the thesis sampling inspection.

3. Problems in the quality management of graduation thesis

The subject of graduation thesis implementation is students and teachers, and may also involve a second supervisor, and the two form a quality community for graduation thesis. There are still two problems:

(1) Problems in graduation thesis work

Students don't pay enough attention. Students do not have a deep understanding of the requirements for graduation thesis in the new era. They just regard the graduation thesis as a task to complete, and do not take this process as an opportunity to improve their comprehensive ability and apply professional knowledge. They do not pay enough attention to the graduation thesis itself.

The graduation thesis takes less time. By checking the notification arrangements for the graduation thesis of each school, some schools start in the eighth semester and find that many students are busy with internships, postgraduate entrance examinations or public examinations. According to the survey data of Mycos, 66% of the senior students' graduation projects the time spent did not exceed two months, and even 7% of the students spent only within two weeks. These data show that students do not devote enough time to graduation thesis.

The scientific literacy of students needs to be improved. Because most graduates are writing academic papers for the first time, they do not understand the structure of the paper, the connotation and writing of each section, academic norms, and the organization of writing language. Through the survey, 59% of the students think that there are difficulties in collecting literature and materials, and 45% of the students have difficulties in choosing topics. This reflects that students have insufficient training in scientific literacy and lack of ways to discover scientific problems.

Instructors do not invest enough in guidance. The survey results show that 12% of the students think that the guidance of the instructor is not enough, and 31% of the students think that they communicate with the thesis advisor "several times a month", combined with the above-mentioned literature collection, topic selection and other aspects of the problems encountered by students in their graduation thesis Responses, instructors' guidance input play a key role in improving the quality of graduation thesis [1].

(2) Problems in the quality of graduation thesis

According to the "Sampling Measures for Undergraduate Graduation Thesis (Design) (Trial)" issued by the Ministry of Education, the focus of the sampling inspection of undergraduate graduation thesis is "the significance of topic selection, writing arrangement, logical construction, professional ability and academic norms", combined with years of graduation Thesis guidance and review experience, undergraduate graduation thesis has the following quality problems.

The topic selection lacks the application of new trends. Most of the school graduation thesis is implemented in the seventh semester. It is also at this time that students start to think about the topic of the graduation thesis. The subject lacks novelty. The method or technology to solve the problem is relatively backward and cannot keep up with the development trend of the times.

Analysis of current research status is unclear. Due to the lack of in-depth thinking about the background and significance of the graduation thesis, the current situation of the selected research topic will not be fully understood. Most of them are just introductions of concepts, or simple descriptions of superficial phenomena, without sticking to the selected topic, analyzing the shortcomings of the current research, and finally settling on the problem to be solved by the topic

you selected.

The logical structure of the paper is not clear. During their university studies, undergraduate students lack training in long essays and cannot control the structure of long essays. Some students do not have a deep understanding of the module division of the thesis and the logical relationship between modules, and do not know what problems to solve in each module.

Academic standardization needs to be improved. The problems in academic norms are mainly manifested in the non-standard citation of references, either not marked, or the position of the label has nothing to do with the cited references. The use of uniform titles and serial numbers for chart materials is not standardized.

Writing skills need to be improved. In the process of writing the thesis, most of the students are not rigorous in language expression, and there are more serious phenomena such as colloquialism and Internet usage. During the writing process, some students failed to analyze the background of the graduation thesis topic, and were not clear about the academic significance or application significance of completing the thesis. When discussing, the two are often confused. The meaning is mentioned in the background, and the background is also mentioned in the meaning. There is no distinction, and they are all clichés.

4. Construction of quality management system for undergraduate graduation thesis

Graduation thesis is an important part of the school's quality assurance system. This paper constructs a graduation thesis quality management system according to the PDCA total quality management concept, as shown in Figure 1. PDCA is a general quality management model, including four links of PLAN (planning), DO (execution), CHECK (checking), and ACTION (processing), and forms a closed loop [2-3] .
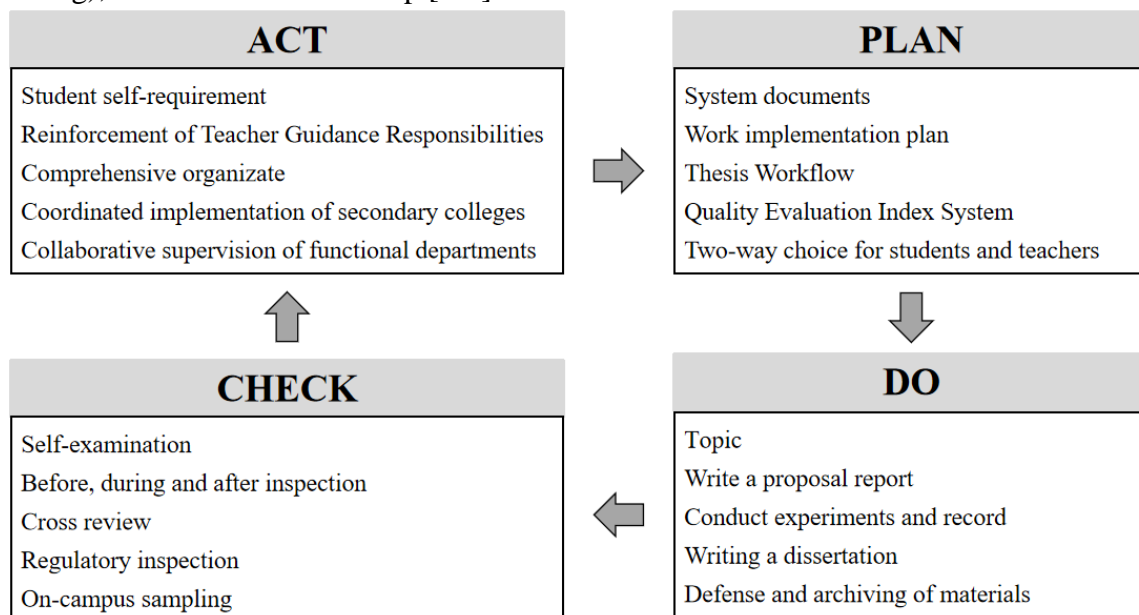
ACT	**PLAN**
Student self-requirement	System documents
Reinforcement of Teacher Guidance Responsibilities	Work implementation plan
Comprehensive organizate	Thesis Workflow
Coordinated implementation of secondary colleges	Quality Evaluation Index System
Collaborative supervision of functional departments	Two-way choice for students and teachers

CHECK	**DO**
Self-examination	Topic
Before, during and after inspection	Write a proposal report
Cross review	Conduct experiments and record
Regulatory inspection	Writing a dissertation
On-campus sampling	Defense and archiving of materials

Figure 1: PDCA Total Quality Management

(1) Planning stage

At this stage, the functional departments need to formulate a series of system documents for graduation thesis management, including management methods, quality standards, etc., according to the school's educational goals and talent training goals. Second-level colleges formulate the implementation rules, work plans, and work processes of the college according to the school system, coordinate each major according to the characteristics of the disciplines, clarify the requirements for

the college's graduation thesis, and research and formulate the graduation thesis quality evaluation index system.

(2) Execution stage

The execution quality of the whole process of the graduation thesis is directly related to the quality of the graduation thesis.

The topic selection is the key link that affects the quality of the graduation thesis. Students need to spend a long time to understand the latest technological developments in the industry and conceive their graduation thesis topics. Often this important link has not received the attention of students and schools.

The opening report is the student's preliminary thinking on the graduation thesis. It requires the instructor's patient guidance and in-depth communication with the students to help students sort out the ideas and structure of the graduation thesis, point out the key points and difficulties, and think about the innovation points of the graduation thesis. The contribution of the instructor in this link will have the effect of getting twice the result with half the effort.

In the implementation process, the instructor needs to focus on cultivating the scientific spirit of the students. All the data and conclusions in the graduation thesis need to be scientifically demonstrated, and no falsification is required. Put an end to academic misconduct such as ghostwriting and plagiarism. At the same time, we must make good use of the graduation thesis management system, requiring instructors and students to upload process materials in real time.

(3) Inspection stage

This stage is the quality monitoring part of PDCA's comprehensive quality management system, including five dimensions: schools, secondary colleges, majors, teachers and students. Through the quality inspection of the key nodes in the whole process of the graduation thesis, including the early, mid-term and late inspections, cross-review, academic standardization, internal sampling inspection, material archiving inspection, etc.

The main inspection contents of each subject in the inspection stage include:

At the level of the school's functional departments, it mainly checks the quality of graduation thesis work such as the allocation of instructors in each secondary college and each major, the organization and leadership of graduation thesis work, sufficient preparation work, and guidance from instructors, and spot checks the progress and quality of students' graduation thesis completion;

At the level of the second-level college, it mainly checks the development of the work of each major in the college, whether the quality standards of each link have been established, and the quality of work at each stage;

At the professional level, it mainly checks the quality of the topic selection, the rationality of the topic opening report, and the standardization of the procedural materials at each stage in the early stage.

(4) Processing stage

The processing stage embodies the concept of continuous improvement. Various problems found in the inspection need to be dealt with in a timely manner, and finally the quality of the graduation thesis will increase in a spiral manner.

5. Conclusion

Through this study, the establishment and operation of the PDCA comprehensive quality management system for undergraduate graduation thesis can better guarantee the quality of applied undergraduate graduation thesis. In the process of establishing and improving the total quality management system, we should pay attention to formulating reasonable quality standards and index systems, formulating perfect quality management measures, and strengthening the quality

management requirements for paper evaluation and acceptance. Through the evaluation of the effect of the quality management system and the measures and methods of continuous improvement, the quality of the application-oriented undergraduate graduation thesis can be further improved, and a solid foundation for the future development of students can be laid. Ultimately, it is expected that the quality management system of this study can provide useful reference and reference for the undergraduate graduation thesis of various schools, so as to promote the development of China's higher education.

Acknowledgments

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