

# Research on Process Management Optimization of Master's Thesis Aiming at Quality Improvement

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## ABSTRACT

As an important part of the master's training process, dissertation is a method to test the innovation ability and academic accomplishment of postgraduates, and its quality must be guaranteed in order to achieve the expected goal of talent training. The quality of dissertation is not only related to the factors of students and teachers, but also closely related to the process setting of dissertation management. In order to improve the quality of dissertation, this study takes the process management theory as the starting point, selects a graduate of a college in Southwest China as the interview object, interviews and explores the implementation details of each link with the existing process steps as the node, and puts forward optimization suggestions.

**Keywords:** *Master's degree thesis, Process management, Topic selection preference, Satisfaction.*

## 1. INTRODUCTION

### 1.1 Research Background

Master's thesis is a vital teaching link to achieve the training goal, and its quality is also an important basis to measure the teaching level and students' research level. In 2014, the Ministry of Education of the Academic Degrees Commission of the State Council issued the notice on printing and distributing the "sampling inspection methods for doctoral and master's dissertations" [1]. Subsequently, X University issued the guidance on the work of master's degree theses (for Trial Implementation) in 2017, supplemented and improved the management system, institutionalized the inspection, strengthened the process management, and conducted the opening and mid-term inspection [2].

Through structured, procedural and periodic information means, intelligent management can be carried out, with records and high efficiency; the quality of graduation thesis can be improved; students' interest in experiment and thesis writing should be stimulated by reasonable guidance [3].

On the one hand, process management greatly enhances the attention of teachers and students, on the other hand, process management also increases

the management cost of schools and colleges. Therefore, whether the process management effectively improves the quality of students' papers, whether the setting of each link is reasonable and so on, has become a problem worth exploring. In order to strengthen the management of each link of graduation thesis, and standardize the working procedures and assessment standards, this study uses the process management theory to analyze the process management of the existing degree thesis. Moreover, this paper attempts to put forward the optimization strategy of master's thesis process management with the goal of improving the quality.

### 1.2 Process Management Theory

Process management originated from business process management (BPM) in the late 1990s, that is to say, the center of enterprise management is put on the operation process, and hierarchical management is carried out according to the actual process sequence [4]. This kind of management considers and analyses problems from the perspective of overall process and optimization, which is a systematic method to continuously improve the business performance of the organization. It refers to process analysis, process definition and redefinition, resource allocation, time arrangement, process quality and efficiency evaluation, process optimization, etc. Process

management is designed for the needs of customers, so this process needs to be optimized with the change of internal and external environment.

There is a certain theoretical basis for the application of process management method to improve the quality of papers. Firstly, "consistency is prior to perfection" [5]. Comparatively speaking, the target group of business process management is customers, aiming at the value-added of a series of activities. The management object of dissertations is students, which aims to improve the quality of dissertations under the guidance of many times. The key of business process management is using business process to create value for customers; however, the crux of dissertation process management is teachers' consistent guidance in the whole process. In addition, "hierarchical

management has the function of increasing value and efficiency". It same as business management, the more specific the tutor's requirements for the paper are at each meeting, the easier for students to understand, master and use it. This progressive quality control method is convenient for students to accept and improve the quality of the paper. At this time, the paper standard has been broken down into several smaller units, and the one-time overall standard has become the multiple partial standard. This not only reduces the difficulty of students to reach the standard, but also explains the quality requirements of dissertations in detail. Finally, progressive guidance helps to cultivate students' creativity [6]. In the process of management, the quality control of each step of the thesis by the tutor is implemented in every meeting with the students, and the guidance of each meeting enlightens the students' thinking.

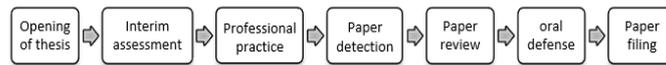


Figure 1 Dissertation management process.

## 2. STATUS QUO OF MASTER'S THESIS MANAGEMENT

### 2.1 Process Overview

Taking a college of X University as an example, the guidance process of master's thesis is shown in the figure above (see "Figure 1"). Each link process will be recorded in the educational administration system, and the next link can only be entered after reaching the standard.

Specifically, in the paper opening stage, the students submit the standard opening report to the teachers of the audit team, including the paper title, research purpose and significance, topic selection ideas, research methods, feasibility, workload estimation and so on. Then they are randomly divided into groups for examination, and once they pass the examination, they can proceed to the next stage of research.

Interim assessment is usually recorded with photos of teachers and students meeting and communicating, which indicates that the research is progressing smoothly. Professional practice generally represents the process of data collection and processing, and the paper will be finalized after this stage. Next, the finished papers will be submitted to the college, and then the college will package and submit them to the school library to

check the repetition rate. After the thesis passes the test, it will enter the evaluation stage, that is, the thesis will be submitted to the teachers randomly assigned by the college for internal audit, and then to the experts outside the school for external audit. If the students' thesis fails to pass the internal and external audit, they will not be able to enter the next examination stage. In the part of examination, all the students were randomly divided into groups for examination, giving necessary supplementary explanations to the thesis and answering the teacher's questions. Ultimately, the college files the papers after the completion of the examination.

### 2.2 Interview and Research

In order to understand the current situation of the paper process management in the college, the method of combining theoretical analysis and empirical research is adopted. Taking the master degree graduates as the research object, through in-depth interviews, this study explores the degree of satisfaction of graduates with the thesis management process and the influence of the current mode on the quality of graduation thesis. First of all, interview questions are set according to the graduate thesis management process, and two interviewees are interviewed in advance. According to the answers, the topics are adjusted appropriately to get the final interview topics:

- What role does thesis opening stage play in the successful completion of the dissertation?
- What role does the instructor play in the topic selection? Has it played a positive role?
- Do you think the form of the opening session (process setting) is reasonable? What kind of form can we take to better mobilize the cooperation between teachers and students and promote the progress of the paper?
- Do you think the interim assessment is necessary in the whole process? Is the assessment method reasonable? Is there a better form of assessment?
- Is professional practice necessary for the whole process of completing dissertation? Why?
- Have you checked your papers before paper detection? If so, how many times has it been checked, and how much does it cost? If not, has it passed the college review? Are you satisfied with the setup of the paper detection link? If not, what do you think is unreasonable?
- How does the paper review help you to revise your thesis?
- In the stage of oral defense, are you satisfied with the time arrangement, random grouping and assessment method? Do you think this way of defense can effectively test the quality of the thesis, and can it be used as the main indicator of degree acquisition?
- Which links do you think are unnecessary in the paper management? Why?
- In the whole dissertation process, which step do you think is the most important? Why?
- In order to improve the quality of graduation thesis, how do you think you can optimize the management process and links of graduation thesis?

Based on the above interview questions, through purposive sampling, that is, according to the research purpose, the research objects that can provide the largest amount of information for the research questions are selected [7]. A total of 6 interviewees are selected, including 2 males and 4 females, they are numbered A, B, C, D, E and F in chronological order.

### 2.2.1 Thesis Opening Stage

At this stage, the tutor provides guidance for students to select the direction and method of research. Students apply for opening draft through the online system, and the college randomly divides students and tutors into groups to answer questions, so as to ensure that the tutor group does not include the tutor of the defending students. The opening tutor group evaluates and predicts the students' opening report (e.g., whether the topic selection is feasible, whether the research work can be carried out smoothly).

At present, the results of the interview show that the interviewees are highly satisfied with thesis opening stage, because there are many words in the interview, such as "determine the feasibility of the paper topic", "determine the direction of the paper and the foundation role of the main framework", "key role", "good bedding" and so on. In addition, the descriptions of "tutor's guidance plays a positive role" and "great significance and role" indicate that the interviewees think that tutor's guidance is of great significance to promote the thesis opening. As Plato said: "a good beginning is half of success", timely communication between students and tutors, collaborative progress is a necessary condition for the smooth opening of the topic, but also an important condition to ensure the quality of the paper.

However, the probability of a pass is not high. A large part of the reason is that the communication between tutor and students is not in place, which leads to improper topic selection. There is also a part of the reason is that the previous batch of students did not successfully open the question, resulting in a vicious circle of accumulation and quota occupation. Therefore, this study takes the dissertations of safety engineering major in a college of X University as the sample (a total of 18), uses the Wordart (A processing software that visualizes data) to explore the research objects (see "Figure 2") and research methods (see "Figure 3") preferences of the dissertations of this major, and obtains the following results:



graduation papers" and "the chances of Library query may be increased as appropriate". In addition, because the library system will display the duplicate checking records of papers, the graduates will check the papers in advance and reduce the repetition rate. The huge cost of this behavior needs to be borne by themselves. To a certain extent, these phenomena show that there are still many imperfections in the paper detection.

### 2.2.5 Paper Review

This process is to distribute the papers to the experts in and out of the university for evaluation. The interviewees unanimously said that internal and external audit can timely correct the controversial issues and correct the problems in the article. They described paper review as "playing the most important role in the passage of the thesis" "finishing point" "necessary role" "very important". This shows that the students have a high degree of recognition for the setting of the paper review link, and have a high degree of satisfaction with the current form.

### 2.2.6 Oral Defense

In the process of defense, an expert group composed of a chairman and four members (including experts from other universities) assesses the dissertation, and takes advantage of experts' different focuses to promote the improvement of the dissertation. Students are also randomly divided into groups, mainly to test their familiarity with the paper and adaptability, so as to ensure fairness.

Most of the interviewees deem the form is reasonable and fair. However, there are some different voices that the arrangement in the investigation time points needs to be improved. For example, different students have different time for defense and revision, but the submission time is almost the same, which is unfair.

## 3. PROCESS OPTIMIZATION AND COUNTERMEASURES

In view of the problems obtained from the above interviews, combined with the respondents' opinions on the whole thesis management process, the existing management process can be optimized to improve the quality of graduates' thesis.

### 3.1 Improving the Efficiency and Pass Rate of Thesis Opening Link

In the part of process management and interview, some problems can be found in the process of topic selection, such as over reliance on tutor, repeating others' research, lack of innovation, improper design method and difficulty.

In view of these problems, managers should clarify the purpose of topic selection, give full play to the spirit of innovation, and moderately learn from previous experience to select topics [8]. Firstly, the topic selection of the paper can be combined with the research topic of the instructor as far as possible according to the major and research direction. Secondly, the administrative department of graduate teaching should put forward specific requirements to restrict the selection of topics by the tutors and graduate students. The specific suggestions are as following:

#### 3.1.1 Topic Selection Must Have Innovation and Development in Academic Field

Students should choose topics that have not been specially done by predecessors; or it has been studied, but there is no ideal result at present, which has broad prospects for further discussion; Or at present, there are divergences in the academic circles, which are worthy of further study [9]. At the same time, when encouraging students to explore unknown areas, schools must have corresponding mechanisms to avoid delaying graduation.

#### 3.1.2 The Topic Selection of the Thesis Should Be Combined with the Social Situation

College managers need combine the actual situation of the current society and devote themselves to solving some practical problems in social development so as to make contributions to social economy, environment and so on. [10].

#### 3.1.3 The Difficulty and Workload of Topic Selection Should Be Appropriate

The paper topic should not be too large, otherwise it is difficult to get the results within the specified time. In addition, it is necessary to avoid choosing topics with less difficulty or too simple path in order to successfully complete the task [11].

The instructor should grasp the realizability of the topic, and fully consider the existing conditions, theoretical scope, data algorithm and other factors. In the specific evaluation of graduation thesis quality, college can focus on the above aspects to develop the evaluation index and determine the corresponding weight.

Finally, based on the feedback of the interviewees, school administrators could try to introduce the external audit experts to evaluate the topic selection and feasibility of the research in advance, which can effectively reduce the problem of retention.

### ***3.2 Considering Interim Assessment and Professional Practice as the Sub Links of Thesis Final Draft***

More than half of the respondents mentioned that professional practice was too sudden. It is difficult for students to allocate their time scientifically if the time for finalizing the paper is not clear, which is not conducive to ensuring the quality of the paper. As a necessary stage of paper progress, interim assessment and professional practice can be considered to be the sub links of thesis final draft. In this way, the rhythm of the process can be taken into account, and the advantage of process management can be brought into full play.

### ***3.3 Paying Attention to Communicating with Students and Perfecting the Details of Paper Detection***

According to the feedback, the submitted materials in the paper testing stage are too complicated, which costs a lot of time and money, and the work efficiency of the college and the library is low. Therefore, it is suggested that the college should intervene in the library testing in advance, or students can connect to the library by themselves. This can relieve the pressure of students in the later stage and ensure the quality of the paper. In addition, managers can communicate with students and tutors to get general opinions on the repetition rate requirements of paper testing, and then formulate the requirements of the college for repetition rate with appropriate reference to the standards of the same type of schools.

### ***3.4 Carrying out the Educational Administration in the Link of Oral Defense***

The problem of this link is that the college's educational administrative work is not mature, such as the college's information release is not clear enough and the notice is not timely. In view of this situation, not only need to urge the continuous implementation and improvement of the college's educational administration work, but also need the continuous communication between teachers and students and the person in charge of the educational administration work. By emphasizing the service and convenience of the college's educational administration work, the quality of dissertations can be improved. For example, setting up the feedback system of educational administration, teachers and students can consult or make suggestions on educational administration work by sending e-mail or making phone calls. Besides, the time arrangement of the defense link needs to be corresponding to the submission time and modification time to ensure that the review period for each graduate does not vary much and achieve fairness as far as possible.

## **4. CONCLUSION**

In order to improve the quality of master's degree thesis, this paper puts forward suggestions on process optimization based on the current feedback. Specifically, it includes the standardized management of topic setting, the process management of students' topic selection, the optimization of graduation thesis detection and evaluation, and the implementation and improvement of educational administration. By optimizing the management of graduation thesis, students' comprehensive ability and quality will be improved to the maximum.

Process management is an effective way for tutors to guide their thesis. In the current situation of serious imbalance of student teacher ratio in Chinese universities, it can alleviate the problem of master's training quality. But managers need to pay attention to the details to make it work. First, the time concept of process management is the only way to make good use of this method, and it is also the starting switch of rhythm and procedure of process management. Students should cooperate with the action according to the pre-set procedure of process management, and it is better to keep the progress basically consistent. Otherwise, process

management will lose its due value and function. Second, the initiative of tutors and the enthusiasm of students are also very important. When using this method, the tutor should make specific analysis according to the specific situation, and do the corresponding flexible work in time.

### **AUTHORS' CONTRIBUTIONS**

This paper is jointly completed by Chuanyu Peng and Hangyu Hu. Chuanyu Peng is responsible for experimental design and contributed to revising manuscript. Hangyu Hu collected and analyzed the data, wrote and edited the paper.

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