

# Research on Quality Improvement of Undergraduate Thesis Based on TQM Concept

Mingming Wu

School of Mechanical Engineering at Anhui Sanlian University, Hefei 230601, PR China,

wmm1984@aliyun.com

**Keywords:** TQM, Undergraduate thesis, Quality improvement.

**Abstract:** Graduation thesis is the last teaching link before graduation. It is of great significance to the cultivation of students' professional ability and learning ability. Completing and passing the thesis defense is an indispensable condition for undergraduates to obtain graduation qualifications and degree qualifications. Aiming at the public opinion environment that the quality of undergraduate graduation thesis is seriously declining, using the theory of total quality management (TQM), based on the analysis of the factors affecting the quality of graduation thesis, the methods and measures to improve the quality of graduation thesis are put forward, and the quality of undergraduate thesis is gradually improved. To change the current public opinion environment and improve the social recognition of undergraduates.

## 1. Introduction

Total Quality Management (TQM) is a management approach based on quality and center, based on full participation, and achieving long-term success through the satisfaction of all parties involved in quality. It mainly includes four important concepts: one is consumer-centered; the other is to emphasize the participation of all employees, that is, all personnel of the organization should care about the quality of the products or services of the organization and participate in quality management; third, the quality continues. Improvement and improvement, we believe that we must gradually improve quality through continuous improvement process, which is the core concept; Fourth, consciously use modern science and technology and advanced management methods, use scientific methods to process and analyze data and information and make judgments. decision making.

According to the relevant regulations of the national bachelor degree, undergraduate students of higher education institutions can complete the undergraduate thesis and complete the undergraduate thesis and apply for the degree. The undergraduate thesis is the systematic summary and knowledge application of undergraduate study. It is an important link to cultivate innovative practice ability and entrepreneurial spirit. It is of great significance to the improvement of comprehensive ability and quality of college students.

Since the "expansion of enrollment" in higher education in China, higher education has changed from elite education to mass education, and more and more middle school graduates have entered higher education institutions. Due to various reasons, the quality of undergraduate thesis has been seriously declining, and even the debate on the necessity of undergraduate thesis has appeared in the education sector. On May 1, 2012, Prof. Dai Jianye from Central China Normal University issued a document entitled "Cute Your Play, Undergraduate Graduation Thesis", and defended the undergraduate thesis defense "going through the field" and "involving the form", calling for the cancellation of the undergraduate graduation reply. It can be seen that the quality and process management of undergraduate thesis needs to be improved. In order to improve the quality of undergraduate thesis, the author analyzes the quality factors affecting undergraduate thesis based on the TQM concept, and explores the methods and approaches for improving the quality of undergraduate thesis under the current situation.

## 2. The Status Quo and Causes of the Second Undergraduate Thesis

### 2.1 Status of undergraduate thesis

There are many problems in the graduation thesis of middle school students in applied undergraduate colleges, mainly in the following aspects:

#### 2.1.1 Outstanding topics, lack of innovation

According to a provincial education department, nearly 500 papers from undergraduate colleges in 12 provinces (one, two, and three private undergraduate colleges) found that about 60% of students were outdated and lacked innovation. Taking 60 pieces of mechanical design and manufacturing and automation engineering graduation design as an example, nearly 20 pieces of “belt conveyor”, “reducer” and related traditional design problems appeared, reaching 30%, and some topics were just changed. “The vest”, its essence is still the traditional design content. Most students can't combine engineering application practice, and can't aim at improving, optimizing, and solving application problems in engineering practice. Graduation design is just the curriculum design of the capacity-enhancing version. Instructors also generally reflect the limitations of students' thinking, lack of their own independent design ideas, the traditional design process, and no innovation.

#### 2.1.2 The format is not standardized

Although the format requirements for graduation thesis in each university are not identical, they all follow the basic format requirements of the dissertation. A school's Academic Affairs Office randomly examined the 20th professional graduation thesis of the 2018th school, and designed a total of 80 papers, 46 of which were basically standardized, and 34 of which were not standardized. Among them, 17 articles were missing or written into the experience, and the references were not quoted or marked. There are 14 articles in the specification, 11 articles in the title of the papers, 7 articles in the catalogue, or 7 articles in the catalog.

#### 2.1.3 Plagiarism is widespread

Plagiarism is the most typical academic misconduct. Some colleges and universities take the paper similarity and identification work in order to prevent the academic dissertations of students' papers. Table 1 is a summary list of the results of the graduation design of the mechanical design and manufacturing automation of a school:

Table 1. The first review results of the 2018 “Mechanical Design, Manufacturing and Automation” graduation design

Text Copy scale Range	[0~30% )	[30%~50% )	[50%~80% )	[80%~100% ]
Number/proportion	147/61.5%	57/23.8%	24/10.0%	11/4.6%

Note: The total number of people is 239, and the text reproduction ratio is less than 30%.

It can be seen from the above table that about 40% of the students have failed to check the results. Some of the qualified students have deliberately modified some of the sentences in order to check the weight, resulting in a situation where the sentences are not fluent and the meaning is unclear. Due to the fact that there are more charts and formulas in the engineering graduation design, the results of the examination are not ideal. With the popularity of the Internet, the phenomenon of writing and writing essays through the Internet has become increasingly serious. Some websites have even launched a new type of business that sells papers. The volume of the website is considerable, which has contributed to the bad atmosphere of plagiarism and plagiarism.

### 2.2 Analysis of the causes of undergraduate thesis problems

#### 2.2.1 The concept of education is relatively backward

The management of graduation thesis process (proposition, topic selection, guidance, defense, summary) is basically centered on teaching management. Students complete the thesis work in accordance with the guidance of the instructor and the college in the work of graduation thesis, which is completely in a “passive” state. Most of the students completed their graduation thesis with the attitude of “reluctance” and “complete the task”. After the “90s” college students have strong self-awareness and need to be respected and understood. They generally show that they are very committed to things they are interested in, and they are perfunctory things that are not of interest. Therefore, in the work of graduation thesis, we should establish a student-centered concept.

Under the guidance and management of the instructors and teaching managers, students should combine their interests and complete the graduation thesis according to relevant requirements.

### 2.2.2 Graduation thesis process management factors

Graduation thesis is related to students, instructors, and teaching management. Each link will have an important impact on the quality of the thesis. It is necessary to emphasize the participation of all members and jointly promote the quality of the thesis. The main insufficiency factors of the current graduation thesis guidance process from instructors, students, and teaching management are shown in Table 2, Table 3, and Table 4, respectively:

Table 2. Instructors influencing the quality of the paper guidance

Factors	A. teaching task is heavy	B. guide students more	C. reward and punishment mechanism is not perfect, no enthusiasm	D. students are of poor quality and the guidance program cannot be implemented.	E. teacher and student exchange less
proportion	72.2%	50.8%	12.6%	42.4%	64.3%

Table 3. Students' influence on the quality of the paper guidance

Factors	A. internsh ip, job search pressure	B. postgraduate examination, examination of civil servants pressure	C. graduation thesis has little effect on future employment	D. lack of guidance from the instructor	E. thinks how can pass	F. Not capable enough
proportion	69.7%	19.7%	20.8%	18.4%	22.3%	56.3%

Table 4. Teaching management impact on paper quality factors

Factors	A. Responsible for data collection, quality is the matter of both teachers and students	B. No management standards, no reference	C. Other teaching management work is busy
proportion	75%	50%	75%

Through the above investigations, it is found that all parties involved in the graduation thesis have no whole-hearted investment, and the graduation thesis belongs to the system engineering. The inability to participate in the whole will inevitably affect the improvement of the quality of the thesis.

### 2.2.3 Graduation thesis summary, feedback mechanism is not perfect

According to the survey, after the completion of the undergraduate thesis work in most colleges and universities, all departments will submit paper work summary. After the paper is summarized, the work of the graduation thesis will be completed. The problems and shortcomings analyzed in the summary can rarely be included as urgent problems to be solved in the rectification of the thesis and the content of the next graduation thesis. There is no feedback mechanism, and the quality of the paper is continuously improved. And improvement can not be implemented very well.

## 3. Three undergraduate thesis quality improvement measures

### 3.1 Multi-channel proposition, reflecting student-centered

At present, "post-00" students have entered the university classroom. Since the "post-90s" enrollment, students' self-centered views have often been mentioned, and students are reluctant to do things that they are not interested in. This requires graduation thesis to be provided during the proposition. More propositional channels. Through questionnaire survey, more than 40% of students hope to autonomous proposition or combine their own participation in the learning activities proposition, the specific questionnaire results are shown in Table 5:

Table 5. Statistical Table of College Students' Expectation Graduation Thesis Proposition Source Questionnaire

The source of the proposition	Teacher proposition	College students creation project	Subject competition	Autonomous proposition	Patents and other
proportion	58.7%	12.2%	17.5%	9.5%	2.1%

### 3.2 Clarify the responsibilities of the faculty, the author of the thesis, and the teaching management staff, emphasizing the participation of all members

Firstly, the thesis supervisor is the first person in charge of the quality of the thesis. On the one hand, the instructor is responsible for the quality of the student's thesis, on the other hand, he should become the tutor of the student's scientific research ability, lead by example, put an end to academic misconduct, and implement the guidance responsibility system. For the academic phenomenon of student papers, the questionnaire survey shows ( Table 6), 42% think that the instructor should take responsibility. The Central South Campus of Wuhan University of Science and Technology has issued regulations stipulating that teachers will instruct academic students to have academic misconduct, and the instructors will be punished. The school stipulates: "The guidance of the graduation thesis is not serious, irresponsible, and the plagiarism of the thesis, or no awareness, or laissez-faire, belongs to the teacher's "mistaken behavior".

Table 6. Academic dissertations of students' graduation thesis, whether the instructor should bear responsibility

Questionnaire options	A. Should bear	B. should not bear	C. Unclear
proportion	42.0%	26.4%	31.6%

Secondly, as the author of the graduation thesis, it is necessary to establish the master of the thesis work. It is necessary to clearly recognize that he is the main body of the thesis, and the instructors and teaching management personnel are all providing services for the successful completion of the thesis work. It is necessary to correctly handle the relationship between the work of graduation thesis and the work of internships, job hunting, and entrance examinations. Through the graduation thesis, we will sort out the knowledge we have learned, improve our comprehensive ability, and better adapt to the needs of society.

Finally, as a teaching management staff, adhere to the requirements of the management of graduation thesis, and supervise the instructors and the authors of the papers to complete the tasks of each node and organize experts to supervise and feedback the work of each stage to ensure the quality of each stage of work.

### 3.3 Conduct annual paper quality report to promote continuous improvement and improvement of paper quality

Through the writing of the annual graduation paper quality analysis report, the paper summarizes and analyzes the work of the annual graduation thesis, focusing on the analysis of the shortage of the graduation thesis work, the reason analysis and the next improvement methods and measures. In this way, we continue to promote the continuous improvement and improvement of the quality of graduation thesis, which is also the core concept of tqm.

## 4. Four conclusions

Graduation thesis work is a systematic work involving instructors, students, and teaching management departments. Under the public opinion environment that the quality of undergraduate graduation thesis is seriously declining, it is imperative to improve the quality of graduation thesis, but it is not done overnight. On the basis of investigation and research, based on the theory of total quality management (tqm), based on the analysis of the factors affecting the quality of graduation thesis, the paper proposes methods and measures to improve the quality of graduation thesis, hoping to gradually improve the quality of undergraduate thesis and change the current relevant Public opinion environment, improve the social recognition of undergraduates.

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## **References**

- [1] Zhang Ximing. Research on college-level teaching quality monitoring system based on tqm concept. Hefei: Hefei University of Technology, 2010.
- [2] Gao Mingsheng. Problems in engineering graduation design and countermeasures . Higher Education Research, pp. 55-58,2009.
- [3] Li Juan. Quality requirements for undergraduate thesis in applied colleges and universities . Journal of Chizhou University,pp. 153-154,2013.
- [4] Zhou Hongxing, Li Bing. Exploration of improving the quality of graduation thesis in applied undergraduate colleges . Education and Occupation, pp. 177-178,2012.
- [5] Wuhan University Regulations: Students are also penalized for copying papers . Xinhuanet, 2009 - 04 -09.