

Study on the Factors of Improvement in the Quality of Postgraduate Students' Academic Paper

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Abstract: According to the analysis on the questionnaire data, dissertation supervision of school play a core role in affecting the quality of degree thesis, individual heterogeneity among graduate students and the comprehensive ability of mentors are also crucial in determining the quality of degree thesis. In order to improve the quality of graduate students, the school, the students and the tutors must work together, the school as a leader who establish policy, tutors as a regulators and guider who make the policy work well, and students devote themselves to improve independent ability and innovative capacity.

1. Introduction

With the proposal of China's supply-side structural reform, the supply-side structural reform of education has also become one of the focuses of academic and educational communities. It also implies that the talents cultivated by China's current education system do not match the needs of the society. In fact, this phenomenon has existed for a long time. Zhang bo (2005) pointed out that the cultivation of talents in environmental higher vocational colleges is out of line with social needs. With the expansion of Chinese education scale, this phenomenon is more and more obvious. Dong jie (2010) pointed out that the contradiction between the talent cultivation of higher education in China and the shortage of regional talents was prominent which is reflected that employees having no jobs and jobs awaiting employees, which directly led to the continuous decline of the employment rate of college graduates (Wang Yongjie., 2016). Graduate education as a main part of higher education undertakes the task of training innovative talents, science and technology talents in China and has got the attention of the education departments at all levels. How to cultivate high-quality graduate students who can meet the requirements of the society is an important goal of graduate education quality in colleges and universities which is closed connected with the current domestic demand for talent and economic development, it is the need for the own development of colleges and universities.

Since the beginning of the 21st century, the scale of postgraduate education in China has been continuously expanding, and the number of postgraduate candidates and applicants has been greatly increased every year. Thus causing the shortage of graduate education resources, one or more graduate tutors trained one graduate student before, but now one graduate tutor has to instruct more than one graduate student, which is accompanied by the decline of the quality of graduate education. Therefore, the evaluation of the quality of graduate education has been widely concerned. Wang Zhanjun (2015), Zhao Lin and Wang Chuanyi (2015), Wang Haiying (2016), Wang Chuanyi and Qiao gang (2017) have evaluated the quality of graduate education in China from different perspectives. Wang Chuanyi and Qiao gang (2017) evaluated the quality of postgraduate education from the two dimensions of talent cultivation and social contribution, and ranked the quality of postgraduate research in 31 provinces and cities in China from four aspects including cultivation conditions, cultivation results, cultural contribution and social contribution. Based on Wang Chuanyi and Qiao Gang (2017), we adopt the cultivation result and degree thesis quality to measure quality of graduate education and evaluate the quality of graduate education of Shandong

Technology and Business University (hereinafter referred to as STBU) with the method of questionnaire survey, thus developing the project of cultivating graduate students and improving the quality of graduate education combining the advantages of the school adjustment.

STBU obtained formal qualification for postgraduate admissions in 2014, and successfully admitted the first session of master graduate students. Before that, The three dominant disciplines of the university and Shandong Normal University jointly cultivated five sessions of graduate students, and achieved certain results which has accumulated some experience, improved the ability of the business supervisor of postgraduate and has laid a solid foundation for autonomous training of graduate students. However, due to the influence of region, it's reputation and competition among the surrounding universities, the graduate education of STBU still faces great challenges. As one of the teaching staff of postgraduates of STBU, the author tries to analyze the factors affecting the quality of postgraduates who have graduated from joint training, namely the factors affecting the quality of postgraduates' dissertations, so as to provide theoretical support for the formulation and reform of the postgraduates' education program and put forward desirable countermeasures and suggestions for the development of the postgraduates' education of STBU. At the same time, the paper summarizes the universal factors that affect the quality of graduate thesis so as to provide reference for colleges and universities committed to improving the quality of graduate thesis.

2. Factors Influencing the Quality of Dissertation

The basic purpose of graduate education is to cultivate high-quality postgraduates which is not only in line with the needs of graduate development and social talent demand, but also the inevitable requirements of the development of graduate education in colleges and universities. Cultivating high-quality postgraduates can not only expand the popularity of colleges and universities, but also attract excellent students, so as to cultivate higher-quality postgraduates. In order to realize the virtuous circle of graduate education, it is important to know how to measure the quality of graduate education and the factors affecting the quality of graduate education. In the previous parts, it is pointed out that the quality of the dissertation for graduate education training results is the index to measure the quality of postgraduate education in our university. The following part will focus on this and discuss the reasons affecting the quality of postgraduate dissertations. The existing literature studies on the factors affecting the quality of postgraduate dissertations are mainly carried out from the aspects of universities, tutors, students and other factors. Now this paper combines the existing research and the basic situation of STBU to analyze them one by one.

2.1 Colleges and Universities.

Colleges and universities are the main units to cultivate graduate students which fully shows the important role and status of the graduate education in colleges and universities. Therefore, the subject consciousness and the principal position of the quality in colleges and universities and a perfect internal assessment system and a sound internal security system is crucial to improve the quality of graduate student degree thesis (Wang Zhanjun 2015). For this reason, LiXiliang (2016) pointed out that the double blind review system for academic dissertation in colleges and universities can effectively urge graduate students to improve the quality of academic dissertation. In fact, there are many loopholes in the management process for some graduate management departments in colleges and universities which to a certain extent reduces the quality of graduate student-academic dissertation. Song Ming and Zhang Chuan-sui (2012) think that the lack of attention to the opening report, the late release of information and the ambiguous requirements to the dissertation quality of the graduate management departments is not conducive to a graduate degree thesis quality improvement.

2.2 Mentor Reasons.

There is no doubt that graduate tutors have an impact on the quality of graduate dissertation. However, there may be some differences in the way they play the role in the quality of graduate dissertation which is closely related to the academic level, guidance level, guidance frequency and

other factors of the tutors (Qiao Gang, Fu Hongfei, 2016).

Not only that, there exist certain differences in cognition in the influence of the graduate student dissertation quality by the tutors. Shi lei (2010) found, with doctoral education of China university of science and technology as an example, basing on the questionnaire statistics, that PhD students think the most critical factor influencing the quality of doctor's graduates is academic atmosphere, and then the tutor's guidance. Yet tutors argues that tutor's guidance role is more important than academic atmosphere in the process of doctoral training. Similarly, this paper argues that this kind of phenomenon also exists in the quality of graduate student-academic dissertation. But what factors led to the cognitive differences between graduate students and teachers, we think "asymmetric demand between tutors and graduate students can make a reasonable explanation, some tutors of graduate education ignored the personalization features of graduate students and demand in the process of training, and the fact of pursuit of quantity and ignoring the quality of academic papers has a negative effect.

2.3 Students' Reasons.

The heterogeneity among students is one of the important factors affecting the quality of graduate degree thesis, such as the gender, age, educational background, the way to get graduate students and the purpose of participating in graduate education.

Wang Zhijun and Xu Lanping(2010) found that the quality of graduate students is the premise and core of affecting the quality of dissertation. Liu Xuemei and Geng Bujian(2011) believe that the utilitarianism and helplessness of graduate students in choosing postgraduate study have a great impact on the quality of graduate thesis. Gao Yao(2017) found that the age and selection type of postgraduates would have an impact on the quality of postgraduates' dissertations based on the sample statistics of national master's thesis sampling inspection. They point out that graduate students between the ages of 25 and 28 have an inverted u-shaped quality to their dissertations. They found that the quality of degree awarded to graduate students who were exempt from admission, taking part in the entrance exam, or equivalent, and other students declined in that order.

2.4 Other Reasons.

In addition, there are many factors affecting the quality of graduate thesis. For example, Jiang Jingling (2005) attacked China's graduate education system of "strict entry and easy exit", which led to a lack of motivation for graduate study, and even reduce the requirements on their own. Fang Yi and Qian Zhizhong(2007) think that old, improper and small topic selection of the dissertation restricts the improvement of the quality of the dissertation. Li Anping(2008) and Zhao Hongwei(2010) pointed out that the lack of depth and innovation in the writing process caused by the topic selection is not conducive to the improvement of the quality of the dissertation. Zhang Zheng (2014) pointed out that the lack of innovation is the main reason for the low quality of graduate thesis. Due to limited space, this article will not list them all.

3. Questionnaire Design

Based on the reading of relevant literature, in order to further understand the cultivation and research situation of our school, the questionnaire is designed from four aspects, including the basic information of graduate students, the situation of graduate students related to the quality of academic papers, the situation of tutors and the school system. The basic information of postgraduates mainly includes the gender, year of enrollment, whether the master's major is consistent with the undergraduate major, and the external review of academic papers. Among them, the gender and major changes of postgraduates have an impact on the quality of academic papers. Generally speaking, female students are more exquisite but less innovative, while male students are just the opposite who show stronger innovation ability but are not exquisite enough in the process of paper writing. The specific impact of gender on academic papers needs to be analyzed through the data obtained from the questionnaire. For cross-major graduate students, their professional foundation is relatively weak, it is undoubtedly very difficult for them to be familiar with the

knowledge in the new field and complete a dissertation within an effective period of time. In turn, it can be assumed that the quality of cross-major academic papers will be low.

In addition to the above reasons, the quality of academic papers will be influenced by the professional basic knowledge, personal characteristics, innovation ability, family background and the purpose of graduate study. For a graduate student with solid knowledge, he can apply the knowledge of the subject skillfully and put what he has learned into practice, so the quality of his academic papers will be high. In terms of personality, active people are impatient, while the writing process of a dissertation needs the patience of the writer. Therefore, it can be seen that active people tend to have low quality of their dissertations. Innovation is the highlight of academic papers and also an important index for evaluating the quality of academic papers. Strong innovation ability means high quality of academic papers. The influence on the quality of the graduate student degree thesis by family background is conducted through the influence of the graduate student's daily behavior, family status may not directly affect the quality of the dissertation, but the graduate students from poorer family usually further cherish the opportunity to attend graduate school, therefore, they are more diligent on the way of learning and scientific research. Besides, there may appear such circumstance that some graduate students feel less pressure by their courses, so graduate students from poorer family participate in to practice in order to improve the quality of life ,thus leading to an abandoned study. The subjectivity of graduate students will affect the quality of dissertation. In addition, the purpose of postgraduate study also affects the quality of dissertation. A graduate student who aims at finding a job will pay less attention to scientific research and training than a graduate student who aims at further study, so the quality of his/her dissertation will be lower.

Tutors are the persons who has the most contact with the graduate students in school, and also the person who is directly responsible for the training of graduate students which is one of the important reasons that affect the quality of graduate thesis. The questionnaire reflected the tutor's situation from the aspects of whether he held an administrative position, whether he hosts a project, whether he was the academic leader, the tutor's academic level, sense of responsibility, the cultivation of graduate students' innovation ability, the number of graduate students he took and the number of academic weeks he discussed with graduate students. If a tutor holds an administrative position in the school or department, it will lead to the decrease of the guidance to his graduate students. Therefore, this paper believes that the tutor's administrative position is negatively correlated with the quality of the graduate students' dissertation. The fact a tutor hosts subjects will increase the chance for graduate students to participate in academic research, improve their research ability and improve the quality of academic papers. Whether the tutor is the academic leader is also an important factor to reflect the academic level of the tutor. Although an excellent tutor does not guarantee the high quality of the graduate students' dissertation, the tutor's guidance to the graduate students will improve the academic level of the graduate students, and the quality of their dissertation may be higher. Innovation point is one of the main reference indexes for evaluating the quality of a degree thesis. Therefore, the cultivation of innovation consciousness of graduate students by tutors will improve the innovation ability of graduate students, so they may propose innovation points. In addition, the number of graduate students taken by the tutor will have a negative impact on the quality of academic papers, because if a tutor has too many students to guide, it might be impossible to guide students in accordance with their aptitude in the actual guidance process, ignoring the differences between different graduate students, resulting in low quality of graduate students. If the number is too small, it may reflect the inexperience of graduate tutors, which will also affect the quality of graduate thesis.

The above has analyzed the influence of students themselves and their tutors on the quality of the dissertation. The policies of the university in the process of thesis proposal, mid-term and defense are also important factors to influence the quality of the dissertation. Of course, different students have different attitudes towards these systems, so the questionnaire results in this aspect are quite subjective. In this aspect, this paper designs six questions, including the thesis proposal, the school supervision in the writing process, the external examination and defense of the dissertation, and the

cultivation of the innovative ability of postgraduates by the school. Usually, the more strict the system of the school about the degree thesis, the higher the quality of the degree thesis will be. The cultivation of students' innovation ability should not only be emphasized by students and tutors, but also by the school.

4. Data Analysis and Conclusion of the Questionnaire

In this survey, 100 questionnaires were distributed and 91 were recovered, with a recovery rate of 91%, 87 valid questionnaires and an effective rate of 87%, meeting the relevant requirements of the questionnaire method. SPSS20.0 software was used to conduct KMO test and Bartlett test on the statistical data, and the reorganized survey data met the requirements of statistical analysis (as shown in table 1), which could be used for factor analysis.

Table 1 KMO and Bartlett tests

Sampling enough Kaiser- meyer-olkin for measurement		0.626
Bartlett degree sphericity test	approximate chi-square	502.662
	df	210
	Sig.	0.000

Limited by the number of questionnaires, the initial eigenvalue greater than 1 was used as the standard to extract the main factor in factor analysis in this paper, and the results are shown in table2.

Table 2 Total variance of interpretation

Component	Initial eigenvalue			Extract the sum of squares and load			Rotate sum of squares load		
	total	variance %	accumulation%	total	variance %	accumulation %	total	variance %	accumulation %
1	3.960	18.857	18.857	3.960	18.857	18.857	3.538	16.845	16.845
2	2.602	12.392	31.249	2.602	12.392	31.249	2.223	10.585	27.430
3	2.073	9.871	41.120	2.073	9.871	41.120	2.214	10.544	37.974
4	1.553	7.397	48.517	1.553	7.397	48.517	1.765	8.406	46.380
5	1.382	6.583	55.099	1.382	6.583	55.099	1.459	6.950	53.330
6	1.148	5.466	60.566	1.148	5.466	60.566	1.361	6.482	59.812
7	1.034	4.924	65.490	1.034	4.924	65.490	1.192	5.678	65.490
8	0.959	4.569	70.058						
9	0.911	4.338	74.396						
10	0.772	3.678	78.074						
11	0.715	3.407	81.481						
12	0.653	3.110	84.591						
13	0.567	2.699	87.290						
14	0.500	2.381	89.671						
15	0.480	2.287	91.958						
16	0.426	2.029	93.987						
17	0.335	1.596	95.583						
18	0.301	1.434	97.017						
19	0.248	1.182	98.199						
20	0.227	1.082	99.281						
21	0.151	0.719	100.000						

As can be seen from table 2, there are 7 factors with initial eigenvalue greater than 1, and the influence degree of each factor accounts for 18.857%, 12.392%, 9.871%, 7.397%, 6.583%, 5.466% and 4.924% respectively. The cumulative factor percentage is 65.49%, it can be further analyzed. In order to understand the main components of each factor, the rotation component matrix is obtained according to the rotation method of the fourth largest power, as shown in table 3.

Table 3 rotation component matrix

	ingredients						
	1	2	3	4	5	6	7
The innovation ability of graduate students	.344	.437	-.082	-.379	.045	.067	-.360
Family situation of graduate students	.055	-.032	.194	-.112	.563	.029	.515
The purpose of choosing graduate school	.032	.222	-.003	-.015	-.081	-.729	.063
Whether the tutor has an administrative position	.038	.096	.184	.658	-.032	-.042	.042
Whether the tutor is in charge of projects	-.187	.144	.469	.418	-.311	.010	.088
The average number of academic exchanges with tutors per week	-.021	.600	.104	.000	.214	.227	.113
Academic level of the tutor	.172	-.022	.849	.057	.054	-.156	-.002
Responsibility of the tutor	.287	-.050	.792	-.102	.246	-.043	.005
Whether the tutor is the academic leader	.133	.022	.634	.324	-.242	.259	-.064
Number of graduate students under the tutor	-.160	.656	-.065	.209	.101	-.206	.059
The tutor's innovative cultivation of postgraduates	.284	-.013	-.079	.248	-.101	.391	.519
Gender	.184	.763	-.018	-.237	-.151	-.140	-.056
Whether it is consistent with the undergraduate major.	.034	.454	-.075	-.041	-.084	-.321	.636
Whether the basic professional knowledge is solid	.082	.375	.102	-.717	-.137	-.002	.061
Personality traits	.008	.152	-.026	.054	.840	.109	-.117
Do you think the proposal of the school is rigorous	.791	.191	.062	.246	.076	.030	-.107
Do you think school supervision is in place in the process of academic paper writing	.813	.151	.065	.081	.065	-.039	-.097
Do you think the academic thesis defense process is strict.	.807	-.067	.222	-.021	-.016	-.001	.102
Do you think the school should have a small thesis hair braid requirement	.331	.330	-.113	-.233	.099	.578	.050
Do you think the external review of academic papers is strict	.739	-.093	-.098	-.173	-.242	.040	.165
The school cultivation of students' innovative ability	.712	-.158	.222	-.227	.124	.093	.084

Table 3 describes the components of each main factor in detail, and the main factors are analyzed in turn. The first main factor of the constituent elements mainly related to the supervision of the school and the system level which is also a problem in STBU that needs an urgent solution. Although the previous joint training has made some achievements, but from the development of the follow-up graduate education, there are still big gaps. First of all, the expansion of the scale of graduate students requires schools to formulate more reasonable policies for training, supervision and oversight. Secondly, the increase of graduate student enrollment poses a challenge to the existing policy labeling, requiring the school to continuously explore, summarize and revise policies and standards in the process of graduate student training in line with the actual situation of the school. Finally, a good policy of postgraduate training, supervision and regulation can guarantee the training of high-quality postgraduates. Heterogeneity characteristics of the second principal factor is mainly the graduate student. So the graduate student's own conditions plays a great role in determining the quality of graduate students' - academic dissertation. Therefore, dedicating to the improving level of graduate student - academic dissertation needs to consider graduate students individual differences in the process of graduate cultivating, rather than taking "standardized production" model so as to improve the graduate student's innovation consciousness and independent ability, etc. In addition, the second major factor also includes the gender of graduate students, which indicates that the gender of graduate students is also crucial to the influence of the degree thesis. Generally speaking, boys are more creative than girls, but less rigorous. The third main factor is the individual characteristics of postgraduates' tutor. Graduate student tutor's academic level, the sense of responsibility, and whether being an academic leader is very important for improving the quality of graduate student degree thesis. From undergraduate to graduate student, the way of learning has been changed. The supervisor's words and deeds in this process is an important factor to improve the quality of graduate thesis. The fourth principal component includes two elements of supervisor administration and postgraduate foundation. Tutor on administrative post may reduce the guiding number and time for graduate students, and the basic knowledge of graduate students is in strong relationship with the depth of the graduate student degree of argument

in writing the paper, similarly, it also can cause the graduate student's mind-set, limiting their ability to innovate. Fifth and sixth and seventh main factor mainly cover the individual characteristics of graduate students, part of the graduate school and teacher factors. The fifth principal component includes two aspects of graduate students' family status and character, this suggests that the graduate student's family situation may be the cause of 'tropism of utilitarianism for graduate education, Some students may just want to get a graduate degree, rather than interest in scientific research, which is not conducive to the improvement of the quality of graduate thesis. The sixth principal component includes the purpose of postgraduate study and whether the school has the requirement of publishing a small paper. The seventh principal component includes whether the major of graduate students is consistent and the tutor cultivates the innovative ability of postgraduates. In a word, the quality of graduate dissertation is affected by many factors.

Based on the analysis of the questionnaire, this paper comes to the following conclusions: The school's rules and regulations on graduate education are an important guarantee for the quality of graduate theses, as well as the guarantee for the cultivation of high-quality graduate students. Insufficient supervision and supervision of graduate theses by the school will reduce the quality of graduate theses to some extent. Secondly, attach importance to the individual characteristics of graduate students. According to the actual situation of graduate students, make a reasonable training program. It is not conducive to stimulate the potential and creativity of postgraduates and limit the improvement of the quality of degree thesis to attach importance to the individual characteristics of postgraduates and make reasonable training plans according to the actual situation of postgraduates. Ignoring the personality characteristics of postgraduates is not conducive to stimulating their potential and creativity, which limits the improvement of the quality of dissertation. Thirdly, it is necessary to strengthen the role of tutors in the thesis writing of postgraduates and pay attention to the cultivation of postgraduates' independent ability and innovative consciousness.

5. Countermeasures

Based on the factor analysis of questionnaire survey data and the actual situation of postgraduate education in our university, this paper proposes the following Suggestions from three aspects:

5.1 School level.

Strengthen the process management of the graduate student's degree thesis: from the graduate student's degree thesis proposal, to the graduate student's mid-term, strict management should be carried out on the external examination, the defense system advancement, then achieving the control of graduate student's degree thesis quality. Regular training for graduate tutors, strict tutor selection system, and putting quality before quantity to ensure the quality of graduate tutors. A standardized system shall be established to strictly supervise the writing of academic papers by postgraduates. In the process of enrollment, the assessment of postgraduates should be strengthened to ensure the enrollment of postgraduates with high quality.

5.2 Tutors level.

Through the analysis, it is found that the tutors is the core link that affects the quality of the graduate thesis, and the graduate tutor should recognize his status and role in the graduate student training. Therefore, it is necessary to strengthen tutors' role in the recruitment process to ensure that graduate tutors can recruit ideal graduate students. Tutors should improve their own academic ability and enhance their academic quality. They should be strict in guiding postgraduates to write dissertation to control the quality and increase the number of exchanges with postgraduates and actively apply for projects to provide opportunities for graduate students to improve their academic level. Emphasis should be paid on the cultivation of innovative ability of postgraduates encouraging them to innovate and put forward their own views.

5.3 Postgraduate level.

The source of graduate students in our university is relatively poor, among which the source

from universities and colleges enrolling secondly account for three quarters, and independent universities and universities & colleges enrolling thirdly account for 9.5%. The foundation of graduate students are relatively low. Therefore, graduate students should first of all improve their professional quality and strengthen the learning of the initial knowledge. Secondly, it is necessary to increase the reading of literature and understand the research status in the research field. Finally, they should be creative, come up with new ideas, and use scientific methods to demonstrate them.

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