ATLANTIS PRESS
Advances in Social Science, Education and Humanities Research, volume 176
2nd International Conference on Management, Education and Social Science (ICMESS 2018)

Dilemmas and Corresponding Measures in the Cultivation of Biology Postgraduates in Ordinary Medical Colleges

Liu Shunmei [1], Cheng Min [2], Zhang Jinbao [2], Qi Huimin[3], Yu Wenjing [1], Gao Zhiqin[1]*
1. School of Bioscience and Technology, Weifang Medical University, Weifang 261053
2. School of Clinical Medicine, Weifang Medical University, Weifang 261053
3. School of Pharmacy, Weifang Medical University, Weifang 261053

***Abstract*—This paper summarizes the dilemmas and corresponding measures in the cultivation of biology postgraduates in ordinary medical colleges, and tries to propose solutions for such colleges to improve the quality of postgraduates. Through analyzing investigated information and summarizing dilemmas, measures are proposed based on the reasons of dilemmas. The result shows that, in the aspect of the cultivation of biology postgraduates in ordinary medical colleges, there are problems such as insufficient number of students, complex major backgrounds, supervisors with low academic level. Such phenomena may be improved by simultaneously taking measures such as attracting students by policy and ensuring individualized teaching and individualized cultivation etc., thereby improving quality of postgraduates.**

Keywords—Ordinary medical colleges; Biology postgraduates; Dilemmas; Countermeasures

I. INTRODUCTION

Along with continuous development of life science and technology, the demand for biological talents has been increasing in society, and the scale of cultivation of biological talents has also increased. The earliest universities in China that offer biological majors are mainly comprehensive key universities, with strong teacher resource and high quality of talent cultivation. However, over the past 10 years, many local ordinary universities and medical colleges have also successively set biological majors. At present, although there are more and more colleges and universities that have qualifications for the cultivation of biology postgraduates, more than 200 institutions in total, the cultivation quality of postgraduates is uneven, especially after the expansion of postgraduate enrollment, the quality of the cultivation of biological graduate students in China has declined [1].

Due to higher quality and famous university effect, the postgraduates from key universities often have great advantage in the competition of employment, while postgraduates from general universities are generally in inferior position, which causes that when applying for the graduate school, many students only choose famous universities. For this reason, the cultivation of biological postgraduates in many ordinary universities faces the current situation of seriously inadequate students, poorer quality of students and low cultivation quality. The above issues are also present in the cultivation of biological postgraduates in medical colleges. Therefore, it is an important and urgent task for graduate education managers in general colleges and universities to figure out how to improve the cultivation quality of postgraduates by optimizing and reforming the cultivation mode of postgraduates against the background of insufficient and low quality students, thereby attracting more excellent students to register for examination and forming a good cycle of postgraduate cultivation. According to related study on cultivation of postgraduates from general medical universities in recent years, the author analyzes the dilemmas in cultivation of biology postgraduates from medical colleges and universities and puts forward some corresponding countermeasures.

II. DILEMMAS OF THE CULTIVATION OF BIOLOGY POSTGRADUATES IN ORDINARY MEDICAL COLLEGES

A. Insufficient postgraduates, Complex major backgrounds And Low Quality of Students Resource

Insufficient student resource and low quality of students are the common problems and the primary issues that currently plague postgraduate education in ordinary colleges and universities. Many employers take graduation from universities with “985 Project” or “211 Project” as the mandatory requirement for employment, which causes that many students compete to apply for key universities for the purpose of employment. In addition, since biological majors are often not the dominant disciplines in medical universities, these universities are in a natural inferior position of attracting excellent students to register for examination, unable to compete with comprehensive key universities. Therefore, insufficient student resource and low quality of students are widespread. Most recruited students are adjusted, with complex major backgrounds, diversified education levels, and uneven student quality, so it is difficult to guarantee the training quality after entering the graduate study.

B. Postgraduate Supervisors withl Low Academic Level

Because postgraduate supervisors are the principal person in charge of postgraduate cultivation, their academic level and comprehensive quality are key factors of the cultivation quality of postgraduates. A high-quality and high-level team of postgraduate supervisors is an important guarantee of the enhancement of postgraduate education quality [2].

Compared with key universities, the academic level of postgraduate supervisors from ordinary universities is low. Due to geographical locations, wages, disciplinary development platform etc., it is difficult for ordinary universities to attract and reserve high-level teachers, resulting in the lack of excellent supervisors. Although many ordinary universities vigorously introduce excellent doctors by various policies and measures to enrich the teacher teams, such highly-educated teachers are still to be improved in academic level, because there is a certain gap between them and teachers of key universities in academic level. Some doctoral candidates without title of senior professional post cannot serve as postgraduate supervisors and take postgraduate teaching tasks, which is the provision of many universities found by the author's investigation. Even with the high academic level, they still cannot guide and cultivate postgraduates.

C. Unscientific And Iirrational System of Postgraduate Courses

The construction of the postgraduate curriculum system is an important part of the comprehensive ability of postgraduates. Scientific course system can help postgraduates not only master systematic basic knowledge of the major, but also study and understand advanced theoretical technology and latest development situation of the major and related majors, which is of great significance for cultivation of postgraduates' basic ability and innovation ability. According to the survey of the author, in many general medical colleges and universities, due to the teacher resources and their scientific level, there are more medical graduate courses but less advanced modern biotechnology courses. For example, most of the genetic courses for biology graduate students are Medical Genetics. The main reasons for such phenomenon are that medical education is the strength of these universities, and the level of medical-related curriculum construction and the teachers of these disciplines are relatively high, while the level of the biology teachers need to be improved. For this reason, it is difficult to set up a wide range of biology courses that are well-suited for the cultivation of biology graduate students, let alone advanced, innovative and cross courses. The theoretical defect of postgraduates restricts their expansion of knowledge, causing narrow visual field and poor understanding on advanced science, which further hampers the development of professional and innovative abilities [3].

D. Limited Opportunities of Academic Exchange for Postgraduates

Participation of academic exchange is one of important ways for supervisors and postgraduates to receive advanced idea, broaden academic vision and improve academic quality. Due to low school influence and insufficient subject advantage, ordinary universities have less opportunity in exchange and cooperation with famous universities, and in the invitation of experts for academic lectures for graduate students, thereby greatly reducing opportunities for postgraduates to participate in academic exchange compared with counterparts of key universities. In addition, the academic exchange activities organized by medical universities always focus on medical research. Although medicine has many similarities with biology, they have different emphases. Therefore, the shortage of academic exchange opportunities restricts to a large extent the cultivation of the quality and ability of biology postgraduates from medical universities.

What's more, the academic vision expansion of postgraduates is strictly restricted by few high-level scientific research projects of teachers from ordinary universities, insufficient cost of scientific research, and inadequate expenditure to support postgraduates to go out to influential academic conferences and academic exchange of this discipline.

III. MEASURES

A. Take Multiple Measures to Attract Excellent Students to Register for Examination

To improve the conditions of insufficient and low quality students, as well as the attraction of universities and majors to examinees, the universities can formulate some incentive policies. Through establishment of the excellent student incentive fund to award students who take biology majors of our university as their first choice or whose exam result exceeds 20% of the national passing score, our university relieves the situation of insufficient biology students in the past several years so that both the examinees taking our university as the first choice and excellent students who change to our university increase significantly.

One of the main reasons why it is difficult for ordinary colleges and universities to attract outstanding students is that graduate students from these institutes have difficulty in finding jobs. If the graduates cultivated by ordinary universities can be employed easily with high employment level, more students will be naturally attracted to register for examination. At present, most biotechnology achievements in the world are applied in medical and pharmaceutical fields, so medical universities can take advantage of their strong medicine or pharmacy majors to cultivate applied medical biotechnology talents [4] instead of cultivating research-oriented biotechnology talents like the universities of science and engineering or key universities. In that case, the postgraduates have a certain degree of competitiveness when it comes to employment, and it is easy to attract more candidates to apply for medical universities.

B. Individualized Teaching And Classified Guidance

Most biology postgraduates of ordinary medical universities are students who are changed to these institutes, with majors of medicine, biology, agriculture, pharmacy etc. and uneven student quality. Under the premise of postgraduates' diversified majors, different quality and interest, and various employment intentions, it is difficult for application of the current traditional and unified postgraduate cultivation mode to meet the needs of diversified students and education quality of students cannot be guaranteed as well. Therefore, the universities shall be student-centered and carry out classified and individualized cultivation in the course selection and the experimental and practical ability training according to students' backgrounds and individual demands so that the students can give full play to their professional advantages, their abilities are cultivated and developed sufficiently and they can succeed in special field of study to guarantee and promote postgraduates' employment, which has a positive effect on improvement of difficult enrollment and low cultivation quality of biology postgraduates from ordinary medical universities at present.

C. Guide Supervisor Team to Give Full Play to Collective Intelligence

As the saying goes, an accomplished disciple owes his accomplishment to his great teacher, so the cultivation quality of postgraduates has direct relation with guidance of their supervisors. Everyone has his strong and weak points, so do graduate supervisors, and the effect of their guidance is often unsatisfactory due to limited capabilities. It is normal that supervisors outnumber postgraduates because of insufficient biology postgraduates from ordinary medical universities. Even with innovative thinking and familiar with advanced experimental skills, some young doctoral teachers still do not have supervisor qualification because their professional titles haven't met the requirement. In view of the situation above, such universities can establish a supervisor team consisting of high-level teachers in the whole discipline group to jointly guide postgraduates and give full play to collective intelligence so that the postgraduates can draw on teachers' strong points through communication with several supervisors, which is conductive to improving their innovation ability and comprehensive quality.

D. Establish Scientific Course System to Meet the Demands of Classified Guidance and Individualized Cultivation

With various major backgrounds, students greatly differ in specialized and basic knowledge, career goals, employment intentions, as well as theoretical knowledge and practical skills that they hope to learn in postgraduate stage, so medical universities should scientifically set up postgraduate courses [5] during cultivation of postgraduates majoring in biology, taking into account the needs of students from different major backgrounds, and setting up postgraduate courses at different professional levels. They can provide multi-discipline postgraduate courses for their students by virtue of the specialty and characteristics in medicine and pharmacy of universities, so that students with different backgrounds can select the courses suitable for self-conditions and development demands to further meet the demand of individual development. The teaching content of some courses can also be divided into two levels: basic and advanced. Students are suggested to choose the proper level according to their own basic knowledge [5], thereby avoiding that the students with poor basis feel difficult to understand and master when learning, while students with good basis think waste of time due to repeated learning.

E. Enhance Academic Exchange to Promote Cultivation of Scientific Research Ability

As the saying goes, see more to know more. As different disciplines are more closely related than ever, it is difficult for people to master the overall perspective of each professional field. Therefore, it is very important to strengthen academic exchange, carry out academic discussion, expand knowledge sources for the cultivation of postgraduates' comprehensive quality and scientific research and innovation ability.

Since the ability of supervisors' and the teaching and research conditions in ordinary medical universities are not as good as that of the key universities, it is conductive to improve the cultivation quality of postgraduates for ordinary universities by carrying out school-enterprise exchanges, inter-school exchanges, and joint cultivation through cooperation with enterprises and high-level research institutes.

In addition, create conditions as much as possible so that graduate students can participate in academic exchange meetings and academic activities, which is also one of important ways to improve postgraduates' comprehensive quality and scientific research ability.

IV. CONCLUSION

In brief, under the premise of insufficient students, diversified backgrounds and low quality of biological students in ordinary medical universities, these universities can practically improve the cultivation quality of postgraduates majoring in biology and better meet the demand of society for high-level biological talents by a series of solutions, such as deepening reform of postgraduates' cultivation mode, implementation of the student-centered mode of "individualized teaching and training", enhancement of supervisor guidance, establishment of a proper course system, as well as improvement of academic exchange.

ACKNOWLEDGMENT

The research is financially supported by Shandong Province Postgraduate Education Innovation Planning Project (SDYY13131 and SDYY15117), Undergraduate Teaching Reform Research Program of Universities in Shandong Province (Z2016Z017), the Medical Education Research Project of Chinese Medical Association (2016B-YX022), and Teaching Reform Research Project of Weifang Medical University (2015Y022).

REFERENCES

[1] Yan Yan, Li Zhiguang and Zhang Xiangpei. Investigation on Cultivation Quality of Biology Postgraduates Related Disciplines under Enrollment Expansion Background, Journal of Graduate Education, 2011. 3: 42-47.

[2] Lu Rongjian. The Influencing Factors and Countermeasures for Cultivation of Innovation Ability of Postgraduates in Local Universities, Journal of Huaibei Coal Industry Teachers College (Philosophy and Social Sciences), 2010, 31(5): 157-160.

[3] Zhang Yingcai, Wang Jun and Liang Wenyu. Master Postgraduates' Course System and Cultivation of Innovative Talents, Higher Education Forum, 2011, 12: 87-90.

[4] Zhang Lei, Wang Huiyan, Liu Lei, Jiang Yong and Li Yan. Exploration and Practice of Cultivation Mode of Applied Biotechnology Talents for Medical Universities, Education for Chinese After-school, 2013, last-three months journal: 104.

[5] Zhang Jian, Li Xia, Jia Lintao, Zhao Jing and Yao Libo. Initial Exploration of Course System Reform of Postgraduates Majoring in Biology of Medical Universities, Progress in Modern Biomedicine, 2015, 15(28): 5555-5557.