

Exploration of Innovative Ability Cultivation of Medical Postgraduates in Minority Areas under the Background of Combination of Industry-University-Research

Bo Ling*, Yan Li*, Yan-E Zhou, Longjian Huang, Ying Zhang, Xianjiu Liao#, Qianli Tang#

Youjiang Medical University for Nationalities, Baise, China

Email: *htmgx919@163.com, #lxj2006910@163.com

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Abstract

The postgraduate educational reform of medical colleges and universities in minority areas focuses on the improvement of medical postgraduates' cultivation quality. This study analyses the deficiencies in the innovative ability cultivation of medical postgraduates in minority areas from the four aspects of theoretical knowledge, clinical skills, experimental skills and the scientific research thinking and abilities, which is on the basis of postgraduate innovative ability. As a mainstream development mode of postgraduate education, IUR (Industry-University-Research) will be an effective method to improve the innovative ability of medical postgraduates with its own advantage and a combination of the characteristics of medical postgraduate education in minority areas.

Keywords

IUR (Industry-University-Research), Medical Colleges and Universities in Minority Areas, Medical Postgraduates in Minority Areas, Innovative Ability

1. Introduction

The cultivation of medical postgraduates in minority areas promotes the economic development and medical and health industry in the country and the minority areas, undertaking a task of providing high-level innovative talents in medical and health field for the country and the minority areas and serving the people with health care (Yao, Tang, Qin, Wei, Ma, Huang, & Huang, 2018).

*These authors contributed equally to this work.

#Corresponding authors.

Even if it has been paid high attention to by governments and universities, the cultivation quality of medical postgraduates in minority areas still falls behind that in developed areas, especially the cultivation of innovative ability, due to the location conditions and development speed of medical colleges and universities in minority areas (Ge, Wang, Zhao, Bao, Gao, Qiao, & Zhang, 2019). The cultivation mode with a combination of IUR has become a key direction of domestic and foreign postgraduate education reform, optimizing the resources of universities, hospitals, scientific research institutes and enterprises to jointly train students (Shi, 2020). In the application of the IUR mode, some domestic medical colleges and universities facilitate postgraduate training and discipline construction (Liu, 2019). Therefore, the difficulties in improving the innovative ability of postgraduates could be resolved by promoting the application of IUR mode in the training of medical postgraduates in minority areas.

2. Analysis of the Innovative Ability of Medical Postgraduates in Minority Areas

1) Application degree of theoretical knowledge

The training plan of medical postgraduates in minority areas highlights the importance of the theoretical knowledge system. Medical colleges and universities in minority areas work hard in the teaching arrangement of theory courses, the allocation of the faculty and the teaching quality monitoring to ensure the proficiency of postgraduates in theoretical knowledge (Long & Kong, 2014). However, deficiencies have been spotted in the medical postgraduates' transformation of theoretical knowledge into application for the reason that the medical colleges and universities in minority areas lack research platforms and the cooperation with enterprises, hospitals and scientific institutes remains to be improved.

2) Standardized degree of clinical skills

Medical colleges and universities in minority areas usually cooperate with their affiliated hospitals to cultivate the clinical skills of postgraduates. The most common forms are: Colleges and universities undertake the training of theories, experiments and scientific research literacy, while their affiliated hospitals undertake the standardized training of clinical skills (Xu, Zhang, Zhu, & Ye, 2020). However, problems such as the small number of affiliated hospitals, the shortage of teachers and the heavy clinical tasks still exist in medical colleges and universities in minority areas. They lead to the short clinical skill training time, less practice and less clinical observation study in the clinical skill training of medical postgraduates, further restricting the standardized degree of postgraduate clinical skills.

3) Degree of proficiency of experimental skills

The proficiency training of experimental skills of medical postgraduates consists of the experimental course study and project practice (Song, Zhang, & Sun, 2020). The contents of postgraduate experimental courses are condensed and the times of them are reduced, so are the times of postgraduate experimental skill

training, due to the shortage of experimental sites and experimental equipment. At the same time, because of the lack of high-level talents in medical colleges and universities in minority areas, only few applications for the projects funded by cities, provinces or the country are granted, resulting in the insufficient projects for postgraduates and reducing the opportunities to exercise their experimental skills.

4) Improvement degree of scientific research thinking and ability

The improvement of scientific research thinking and ability can be divided into three dimensions: literature reading ability, writing ability and ability of completing scientific research projects (Ding & Wang, 2020). The school-running fund shortage of the medical colleges and universities in minority areas and their limited volume of the books collected in libraries and literature in online database remain to be resolved urgently. At the same time, medical colleges and universities in minority areas fail to contribute to the academic promotion of postgraduates on the grounds that few permissions are given to the applications for enterprise-sponsored projects and government-sponsored projects. Based on the fact that not many authorizations are given to medical colleges and universities in minority areas to grant their students master or doctor certificates and such authorizations are given not for a long time, the relevant writing ability training system for postgraduates is not fully developed, which fails to quickly improve the writing ability of medical postgraduates.

3. Measures for Integrating IUR Mode with the Innovative Ability Training of Medical Postgraduates

1) Theories should be integrated with practical application in industry to enhance the application of knowledge system by postgraduates

The IUR mode focuses on the application of theoretical knowledge to the production and clinical practice to transform the scientific research achievements into productivity, so as to promote the national science and technology and the industry upgrades (Shen, 2020). In IUR mode, superior resources complementing each other, the medical colleges and universities, the hospitals and the scientific research institutes can cooperate to train the medical postgraduates in minority areas. That is to say, the theoretical knowledge, the practical application and the training of scientific research literacy are provided respectively by the medical colleges and universities, the hospitals and enterprises and the scientific research institutes. With the three above integrated, such training mode combines the training of the application of theories to practice and the training of the application of theories to scientific research to comprehensively enhance the ability of postgraduates' application of the theoretical knowledge system.

2) The medical colleges and universities and the hospitals jointly train postgraduates and standardize clinical skills

The clinical skills are jointly cultivated by the medical colleges and universities and the hospitals (Liu, Chen, Zheng, Peng, Li, & Tang, 2016). In the IUR mode, the depth and breadth of cooperation between the medical colleges and universi-

ties and the hospitals are highly emphasized. While facilitating the joint training with affiliated hospitals, the medical colleges and universities in minority areas can expand the number of cooperative hospitals, so as to meet the needs of standardized training of clinical skills for medical postgraduates. At the same time, medical colleges and universities in minority areas can strengthen the depth of cooperation with hospitals, such as further promoting reforms in the sharing of teachers and the integration of the basic theoretical courses and clinical practical training, so as to improve the level of standardized clinical training for postgraduates.

3) Platform resources should be integrated to improve experimental skills

The shortage of scientific research platforms is a key problem of obstructing the development of postgraduate education in medical colleges and universities in minority areas (Li, 2018). The IUR mode is an effective method to resolve the shortage of scientific research platforms in medical colleges and universities in minority areas by promoting the sharing of platform resources of the medical colleges and universities, the hospitals, the scientific research institutes and the enterprises. The number and contents of postgraduate experimental courses can be expanded through the sharing of platforms in order to strongly support the postgraduates' grasp of experimental skills. The sharing of high-level talents plays a critical role in the sharing of scientific research platforms, which is not limited to the experimental sites and equipment. Flexibly introduced to medical colleges and universities in minority areas, high-level talents from hospitals, scientific research institutes and enterprises can participate in the training of medical postgraduates, as postgraduate tutors. Medical colleges and universities in minority areas with their cooperators could integrate the discipline and platform resources and achieve the breakthrough over national and provincial projects to guarantee the projects and platforms for the experimental skill training of postgraduates.

4) Industrial development should be focused to cultivate the scientific research thinking and abilities of postgraduates

The promotion of local industrial development is the key by analyzing the common needs of the medical colleges and universities, hospitals, scientific research institutes and enterprises in minority areas (Yang, Nong, & Deng, 2019). The win-win cooperation can be realized by considering the common needs during the promotion of IUR mode by the medical colleges and universities in minority areas. Therefore, the IUR mode can be successfully implemented in the innovative ability cultivation of postgraduates by focusing on promoting the development of local industries.

Scientific research thinking and abilities are one of the key training directions among the innovative abilities of postgraduates. Through the joint efforts of literature reading, dissertation writing and project completion, the improvement of scientific research thinking and ability can be realized. With the training combined with IUR mode, the shortage of the books collected in libraries and literature retrieval databases in medical colleges and universities can be resolved

by the supply of the cooperated scientific research institutes, hospitals, and enterprises to increase postgraduates' reading of literature. Especially in the aspect of dealing with the urgent shortage of literature for local industries, the mode of multi-party expert lessons or lectures should be added as well as the supply of literature for local industries to improve students' grasp and understanding of literature and lay a foundation for project applications and essay writing. In the process of the project applications and project achievement acquisition, medical universities and their cooperators jointly construct the superior academic teams and subject teams where the application transformation abilities of the hospitals and enterprises are given full play as well as the academic level of the medical universities and scientific research institutes, so as to establish scientific research teams with advantages of the theory transformation and science and technology achievements transformation and provide strong support for postgraduates' completion of projects. In the cultivation of postgraduates' dissertation writing ability, talents of the universities and their cooperators should be utilized to guide the dissertation writing of postgraduates and improve their writing ability by reference to the famous universities' closed-loop management of the proposal report, medium-term inspection report, dissertation issuance and dissertation for graduation.

4. Conclusion

The cultivation of innovative ability of medical postgraduates in minority areas is one of the core contents of postgraduate education reform. The cultivation of innovative ability of medical postgraduates in minority areas refers to four dimensions: theoretical knowledge, clinical skills, experimental skills, scientific research thinking and abilities, which should be focused to analyze the deficiencies in them. The training mode combined with IUR should be taken as a key element, fully understood to be applied in the cultivation of innovative ability of medical postgraduates in minority areas, so as to promote the training quality of medical postgraduates in minority areas.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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