Current Situation and Developing Countermeasures of Postgraduate Innovation Center in China

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Abstract. Innovation is the driving force to promote the development of our nation. Postgraduate education, as an important approach to cultivate high-level talents, is a major part of the national innovation system. The establishment of the Postgraduate Innovation Center has an important significance for the cultivation of innovative talents in colleges and universities. This paper expounds the connotation and characteristics of Postgraduate Innovation Center and analyzes its current situation, operation mode, function orientation, institution settings and the innovative products. The paper also points out the problems in the current situation of the Postgraduate Innovation Center and finds the factors which restrict the development of the center. Finally, the paper puts forward some corresponding countermeasures.

Keywords. Postgraduate, innovation center, situation, countermeasures.

1 Introduction

Postgraduate construction is not only an important indicator to evaluate the development of the research universities, but also the main force to promote the development of society. Since 2003, for the implementation of the Postgraduate Education Innovation Project, Ministry of Education successively approved national universities set up Postgraduate Innovation (Entrepreneurship) Center, (hereinafter referred to as the Postgraduate Innovation Center or PIC) in order to promote graduate education, improve the social adaptation ability. After ten years of development, each of the PIC has an achievement. As the accelerating social development, however, the PICs should try the best to satisfy some new requirements, which make the PICs improve continuously, to enhance the comprehensive competitiveness of graduate students.

2 Current situation of the construction of PICs in China

In 2003 the Ministry of Education began to deploy the postgraduate education innovation project, and in 2005, the Ministry of Education issued a document putting forward opinions for implementation of graduate education innovation project, strengthen the research of the innovation ability of graduate student training, further improve the quality of postgraduate education. Since the establishment, the PICs have carried out many kinds of special activities, which not only enrich the postgraduates' extracurricular life, but also improve the comprehensive ability of graduate students.

According to the statistics of 19 Postgraduate Innovation Centers¹, there are four types of the activities that PICs held, which are graduate innovation project, research fund, innovation and entrepreneurial salon innovation contest, some other characteristic activities. All universities have stimulated the graduate student innovative projects, to have a different degree of innovation awareness of the graduate students to be supported, which have a strong catalytic effect on the graduate students' innovative consciousness. Innovation salon gives inspiration to the majority of graduate students through the theme speech of teachers both inside and outside school and some brilliant students, and provides graduate students opportunities to communicate with successful entrepreneurs. Many universities have established venture funding scheme, the school provides basic conditions and start-up funding for postgraduates, on one hand to stimulate postgraduate innovation potential, on the other hand also injected fresh blood for the society. Graduate innovation competitions of many types, is to increase the exchanges of postgraduate inside school and intercollegiate through the means of competition. Universities also hold different characteristics activities according to their own characteristics, not only enrich the graduate school life, but also provide special exchange platform for graduate students [1].

According to the content, the activities held by the Postgraduate Innovation Centers could be divided into two categories, basic activities and enhanced activities. The basic activities are mainly to meet the basic needs of the research and exchange of research students. The so-called innovation is not river without source, nor tree without root, only by inheriting first would we have the innovation, basic activities provide many chances for graduate students, training teaching mainly focuses on the scientific research ability, and basic activities can provide more thinking opportunity for postgraduate students to learn to use. The enhanced activities are to select from the majority of graduate students have a sense of innovation and innovation, and in the event will be fully demonstrated innovative consciousness, and to become a typical incentive to other graduate students. The enhanced activities are mainly launched in form of competition and funded project. Although only part of the graduate students could involve in, they can set up a typical, fanning out from point to area of effect [2].

3 Difficulties in the construction of the PIC in China

3.1 The inside factor of the difficulties in the construction of the PIC

There are many kinds of activities carried out by the Postgraduate Innovation Centers, it has greatly enriched the life of the graduate students, but after graduation, the students still face the pressure from work and life. In the face of reality, a lot of students do not know how to transform intelligent into productivity, in another word, do not know how to learn for use [3]. A lot of requirements is proposed by the pressure of reality for graduate students, for example, how to adapt to the work as soon as possible, how to use professional knowledge to solve practical problems, how to solve practical problems by cross disciplinary. These issues will become the obstacles to the development of graduate students, but also will become the PICs' problems [4].

The Postgraduate Innovation Center aims to help the graduate students to improve the level of academic research, to enhance the innovation ability, to improve the comprehensive qualities and to enrich the campus cultural life. But for now, the main activities held by the PICs focused on the basic activities, many activities have to attract graduate students to participate in as much as possible, while the graduates maybe not very interested in. On the other hand, the

¹ This paper references the Postgraduate Innovation Center, Henan province postgraduate innovation center, Jilin University postgraduate innovation center, Dalian Technology University of postgraduate innovation center, Dongbei Technology University postgraduate science Service Center, Northwest Agriculture and Forestry University postgraduate innovation center, Huazhong Agricultural University postgraduate innovation engineering, Beijing Forestry University postgraduate innovation center, Hehai University postgraduate innovation center, Chongqing University innovation practice base, Northwestern Polytechnic University postgraduate innovation experiment center, Nanchang University postgraduate innovation center, Huazhong Science and Technology University postgraduate innovation and entrepreneurship practice base, Liaoning Technical University postgraduate innovation center, Shenyang Medical University Postgraduate Innovation Center, Northeast Forestry University postgraduate of science and technology innovation center, Hunan Postgraduate innovation and entrepreneurship center, Zhejiang University postgraduate center for innovation and entrepreneurship, Beijing Jiaotong University postgraduate center for innovation and innovation center, Nanjing Technology University postgraduate innovation center.

enhanced activities focused on innovative competition, which the main purpose is to achieve better goals in the national competition. Although postgraduates can also get exercise, the utilitarian purpose is contrary to the original intention of the establishment of the competition and so the PIC [5].

3.2 The outside factor of the difficulties in the construction of PIC

The Postgraduate Innovation Centers have two main forms, one is relying on the establishment of the university, affiliated the postgraduate department, while the other is establishing a cooperative relationship with enterprises. Affiliated the postgraduate departments in charge of the form, PICs are easy to be affected by the administrative, even though still managed by the postgraduates and freely develop, it does not prevent the school will judge the goals of the PIC linking to the graduate department, in a certain extent by results of quantitative evaluation of the PIC. While the mode of cooperation with enterprises, are more likely to exhibit the utilitarian nature, these PICs indeed increases the opportunity for graduate students to practice, but too much to cater to some enterprises is easy to limit of graduate students innovation ability and the ability to explore [6].

Innovation based on market demand and social development is of great significance, but it is far more important to lead the development of the market and the society. In recent years, there goes an innovation slogan, called encourage people to start their own businesses and to make innovations. There is still a big gap between the developed countries and China in innovation. The transformation from made in China into made by China still need to continue to advance. In addition, undergraduate and graduate groups have the phenomenon of weak entrepreneurial ability, adapting to the situation in long cycle. The graduate students have not been exerted fully in competition of social work.

4 Analysis on the causes of the difficulties in the PIC construction in China

4.1 Heritage

The development of Postgraduate Innovation Center dilemma from many reasons, as any innovation is not achieved overnight, so is the development of the PICs. The primary factor for the building of PICs is heritage. In order to innovate, a team should be built up first, which could cooperate and inherit. Some innovations may need a long incubation period, even the researches would make some progress with the help of the Postgraduate Innovation Center, it maybe still a problem for team disbanded. Especially in the interdisciplinary field of innovation research, it is more common to lead to the whole innovation plan stagnation if the core innovation researchers left.

4.2 Cross discipline

The inadequate development of cross discipline is another important factor restricting the development of Postgraduate Innovation Centers. Innovation must be based on the heritage and to make a breakthrough. However, it is not easy to make a breakthrough in a single subject or field, and it may take a long time to develop. And innovation in a single subject or field maybe restrict in the practical application. It is always not easy to solve the complex practical problems with the research of one single subject or field independently. Interdisciplinary research tend to be more conducive to solve practical problems, cross disciplinary exchanges are also more likely to make a breakthrough innovation. At present, more and more attention has been paid to the Interdisciplinary researches, but the PIC is lack of providing the platform for the exchange of researches crossing fields [7]. However, professors tend to be more focused research in a particular field or discipline, not many disciplines involved, while the graduate students on the other hand, have certain understanding of their own subject, have not form a fixed pattern of thinking in their majors and have a strong accepting ability. However, most of the PICs do not have sufficient capacity to provide the necessary research equipment and funds for the cross discipline [8].

4.3 Research period

Research period of innovation plan and innovative project is long, while the funding cannot meet the need of the research. Although each Postgraduate Innovation Center has funded the independent innovation project of graduate students, the funding is usually not enough.² Generally speaking, the research ability of graduate students is weaker than that of the professors, so the postgraduate is not supported like the professor when doing research. But currently the PIC is difficult to give enough support to the neither innovation programs nor innovative projects. And due to the time limit of graduate students, graduate innovation projects are often limited to one year, while is not sufficient for some of the graduate innovation project, which could only afford to some stage results. Fixed period and limited research support have been limited to the results of the graduate innovation project.

5 Breakthrough in the predicament of the PIC construction in China

From the perspective of the establishment of Postgraduate Innovation Center, it is a platform for graduate students to plan independently, manage independently, develop freely, innovate independently, but also the link between the school and postgraduate. The construction of PIC requires the lead of the supervisor, but more freedom to develop. The supervisor arranges the PIC basic activities, in addition to the PIC need brainstorm and hold more enhanced activities. It could regard the basic activities as to inherit, while the enhanced activities can be considered to be the focus of breakthrough and innovation. Graduate students not only need to learn the existing knowledge to absorb the existing successful experience, but also need independent innovation, free development. The first job of PIC is to mobilize the enthusiasm of the postgraduate as far as possible, especially to hold the characteristic activities, which according to the different situation of the schools, to carry out rich and colorful activities, to improve the graduate student's enthusiasm for innovation through the characteristic activities.

From the perspective of the basic situation of the Postgraduate Innovation Center, it mainly provides the development platform for the graduate students. As mentioned above, the innovative advantages of graduate students are in cross disciplines, the PIC should provide platforms for different professional graduate students to increase the impact of thinking as much as possible. And PIC should do whatever it could to meet the basic conditions for the development of interdisciplinary research. The graduate students completed the professional development in their training units to complete which does not require additional resources, but each training unit typically do not have the conditions for the development of interdisciplinary research. As a platform for the exchange of graduate students, The PIC should do it best to provide the opportunity to cross disciplinary exchanges for the graduate student. It is necessary to set up laboratory or communicating room for a further research of cross disciplinary, but should not waste the resources of the university.

From the perspective of the needs of Postgraduate Innovation Center development, the PIC should be the leader of the innovation of the graduate students. PIC not only use the innovation program as a means to encourage innovation and innovation awareness, but also need to try other ways to stimulate the innovation willingness of graduate students. It is not right to make innovation formalized, even if there is no innovation project graduate students should also develop research habits and thinking habits. The PIC should try to do a good job in guiding the postgraduates, through the establishment of a typical way, to further stimulate the innovative awareness and innovative desire.

6 Suggestions on the development of the PIC in China

Since 2005, the domestic Postgraduate Innovation Center has achieved remarkable results, but also basically developed to a bottleneck. We must strive to break through this bottleneck in order to make the PIC to develop continually, but also in order to make the PIC to provide better service for the China Postgraduate Innovation Program.

² Some of the PICs annually funded dozens of key projects, while the general project does not provide funding, others fund a large number of Graduate Innovation Center projects, which funding for each project is not much.

According to the analysis above, the root of innovation lies in inheritance, the Postgraduate Innovation Centers should not only strengthen the development of basic activities, but also should improve the practical ability and basic working ability of graduate students. What's more, for the development of PIC itself, PIC needs to optimize the enhanced activities and increase the communication between graduate students in different majors. And the PIC should also attract more graduate students to participate in innovative activities, and strive to create a complete and continuous innovation team. The specific suggestions for the development of the PIC are as follows,

6.1 Improve the basic abilities of the postgraduate

As the graduate student's basic abilities restrict the innovation ability, the Postgraduate Innovation Center, as the leader of the innovation of the graduate student, should undertake the responsibility of improving the basic abilities of the graduate students. Entrepreneurship and innovation not only requests the students have the agile thinking but also need to have solid basic abilities. Therefore, the PIC should try its best to improve the students' practical ability, to avoid unrealistic expectations for graduate students.

6.2 Constructing innovation teams

As the Postgraduate Innovation Center is an autonomous organization of postgraduate, it is easier for PIC to unite the graduate student from different schools and build an innovation team. After building the graduate innovation team, the PIC should try to maintain a relatively stable team system, and make great efforts to perfect the echelon construction of the innovation team, in order to create famous brand innovation team and fan out from point to area, to leading role. And the PIC could combine with the specific circumstances of the university or the local, and build a targeted innovation team, of which the innovative results could lay particular emphasis on local specific circumstances and practicality. What's more, the improvement of the echelon construction of innovative teams can overcome the problem of a longer period of innovation research. Hence some of the innovation projects with a long period of research will not be terminated because of some members leaving [9].

6.3 Hold the enhanced activities

To improve innovation consciousness of graduate students mainly depends on holding the highly quality enhanced activities. Each Postgraduate Innovation Center has characteristic activities, which combine the local characteristics or the university. Compared to traditional activities like salons, seminars, characteristic activities could excite graduate students innovation consciousness and enthusiasm greater. And enhanced activities are easy to select innovative talent, which is conducive to the construction of innovative team.

6.4 The interdisciplinary innovation

The interdisciplinary innovation can bring into play the advantages of the Postgraduate Innovation Center. But interdisciplinary innovation is also more likely to encounter obstacles especially the space, equipment. The PIC should give full play to the network resources and data resources, and provide space for interdisciplinary innovation research as much as possible, and apply for idle equipment to school, try to make school existing equipment to maximize the use of. If the existing equipment cannot meet the conditions, the PIC could also apply for the purchase of equipments, which the equipment application should be based on a complete innovation team and a forward-looking innovation program in order to avoid waste.

Conclusion

The analysis of the article about the Postgraduate Innovation Center cannot cover the entire problem the Postgraduate Innovation Center faces. We still wish this article would take more attentions on the construction of PIC in China. The development of postgraduates is the some kinds of the future of China. So the PIC should shoulder the mission of improving the innovation ability of graduate students. And the main problems for the development of PIC are heritage, cross discipline and research period. And the suggestions that mentioned above could make a great help to the construction of the PIC.

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