Reflection on the Construction of Innovation Platform for Professional Degree Graduate of Mechanical Engineering in China Regional Universities

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Keywords: Local Colleges; Mechanical Engineering; Postgraduate Degree; Innovation Platform.

Abstract. This article researched and analyzed the status and problems of innovative ideas, innovative practices and innovation ability development platform construction for engineering postgraduate degree in local colleges, based on practice and experience in mechanical engineering postgraduate training process, and put forward a number of recommendations for innovation platform construction in local university mechanical engineering graduate degree.

Introduction

Manufacturing industry is the main body of national economy, also is the foundation of a commonwealth, the sharp tool of national recovery, the cornerstone of country powerful. May 8, 2015, State Council issued first decade of action for manufacturing power strategy - "Made in China 2025 strategy. In "Made in China 2025 strategy", it clearly stated that the basic guiding ideologies are "innovation-driven" and "people-oriented”. Realization of “Made in China 2025 strategy” needs thousands of innovation individual, especially the high-level application-oriented talents [1]. In manufacturing multi-level and multi-type training system, postgraduate training of colleges and universities mechanical engineering play important roles. Essentially, postgraduate training process is collaborative research between tutor (tutor teams) and postgraduate during a process of research platform, under certain atmosphere [2–4]. The key to improving postgraduate innovative abilities and achieving the “Made in China 2025 strategy" is how to build a high-quality research and innovation platform, and how to create a relaxed, vibrant and innovative research atmosphere.

Postgraduate Innovation Platform Construction and Postgraduate Degree Training Experience of Mechanical Engineering in Xiangtan University

Xiangtan University is a major comprehensive university belongs to Hunan Province, orientation theory of school is: based in Hunan, facing whole country. University’s postgraduate degree training in mechanical engineering is always close to development of machinery industry in Hunan Province. The college of Mechanical Engineering in Xiangtan University began to recruit full-time professional degree graduate students since 2011, currently have about 100 students in school. College has made several achievements in the postgraduate innovation platform construction with support of university and superior departments. Currently innovation platform for school mechanical engineering postgraduate training can be divided into following three categories: provincial scientific research innovation platform, subject platforms, and postgraduate training base which built by business combination. Innovative ideology and innovative ability of mechanical engineering postgraduate rely on above researches and innovation platforms have made considerable achievements.

Whether tutors or students were somewhat having confusion through practice of mechanical engineering postgraduate training in recent years. Confusion mainly reflected in following circumstances: disciplinary comprehensive extent of provincial and discipline innovation platform
was not enough; hardware and software resources were shortage; the research work which postgraduate engaged was easy to form an "a research island". Research is difficult to out of the laboratory; postgraduate training mechanism of united training base needs to be perfected. Thus, the research and innovation during postgraduate training processes is often caught in the inefficient or ineffective position.

**Common Problems about the Mechanical Engineering Postgraduate Degree's Sense and Ability of Innovation in Local Colleges' Innovation Platform**

Many local colleges and universities provided practice opportunities, demand information and financial resources for postgraduate by setting up industry-university-research cooperation in recent years, just like Xiangtan University did [3]. However, a considerable part of local colleges and universities is based on years' experience of academic postgraduate training, teaching and researching process which is difficult to separate from academic postgraduate teaching and researching system or training model [3-5]. Research and innovation platform are difficult to adapt full-time postgraduate training, main problems are:

**Lacking of Graduate Creative Ability Caused by Innovation Platform Positioned Too High**

Innovation platform construction relating with local universities and mechanical engineering is basically aimed at subject frontier, trying to carry out a part of first-class level research or innovation project due to long effect of academic standard concept and ranking mechanism of university. In fact, it is well known that most of postgraduate students are difficult to have adequate knowledge reserves to carry on subject frontier research not to mention research innovation only through 2 to 3 years of training and education.

**The Link between Mechanical Engineering Innovation Platform and Local Economic Development Are not Close Enough**

Tight connection degree between university and industry has changed with management system separation of university and industry. Main reasons are: on the one hand, company only focus on economic benefit; on the other hand, strengthen contacts with local businesses is hard to achieve because of limit funding and management of university. Research cooperation projects for two sides actually can carry out are not much; therefore postgraduate students which train on such mechanical innovation platforms are also inconsistent with development expected of local enterprises.

**The Integration of Mechanical Engineering Degree Innovation Platform is not Enough**

One side, valuable mechanical engineering researches and innovation projects are often multi-disciplinary and multi-major. On another side, real innovation is product and effectiveness for mechanical industry, but product innovation should be like a modern war, needing talent, "knowledge" and resources gather together, forming market-oriented products. In this process of innovation, it can really cultivate high-quality person with innovation ideology and innovation ability.

**Solutions and Recommendations**

**Develop Students’ Correct Innovative Ideas**

Firstly, communities, colleges and teachers have a responsibility to tell students such concepts like "What is innovation? How to innovate?" Especially, mechanical engineering professional degree graduates need to realize that "innovation" is not necessary to pursue the research object they want in the “frontier, first-class level”. In machinery industry, as long as a breakthrough in the previous study, whether product, process or technology, this is called "innovation". Secondly, students should recognize they need to face "failure" in "innovation". The whole society should form a proper
concept to face "failure of innovation". In this respect, governments, colleges, and enterprises should show their tolerance to failure and set policies to encourage people summarize the experience and lessons.

**Develop Postgraduate Degree Innovation Platform in Mechanical Engineering, under the Strategic Coordination, Resource Coordination, Capital Coordination of Local Governments, Businesses and Schools, also Integrating Multidisciplinary Synergies**

Colleges are the main field of training mechanical engineering postgraduate innovation mind, innovative practices and creative ability. Firstly, college should integrate scientific research and innovation platform resources as much as possible. Secondly, for the mechanical engineering postgraduate, activating participation, supporting and helping of local machinery industry are the final aspect to achieve mechanical innovation achievements marketized and commercialized. The policy guidance and funding of local government are the external protection of training postgraduates' innovation ability.

**Based on the Internet Technology, Build Scientific Research Innovation Platform of the Whole Community Broad Participation**

With development of science and technology, the future of innovation will be embodied as a complex. This complex is reflected in individual ability firstly. Based on the internet technology, we can build scientific research innovation platform of the whole community broad participation, make postgraduates can focus on their own innovation on the platform to consult, help, get support, and validate. This can guarantee "innovation" success. Firstly, it can promote "innovative" result of postgraduate students training process. It can also attract industry experts, university academics and interested members of community to judge value and market acceptance feasibility of "innovation". Secondly, it can attracts supporting of social resources and capitals through Internet platform, such as sponsored from enterprises, individuals and risk fund, so that "innovative" can be accepted by social and market. Thirdly, colleges and universities can improve training quality of postgraduate innovation through integrating colleges and universities postgraduate training innovation platforms into a common platform, sharing present knowledge, resources and equipment conditions which constructed by college postgraduate training innovation platform.

**Conclusion**

There are many disadvantages in Chinese education system, exam-oriented education before entering university, "disconnect from society" after entering college, and "isolated island of researching" in postgraduate education. Many people often missed opportunities for innovation constantly. To achieve "Made in China 2025 strategy", innovation space and time leaving for us are not much. Therefore, it should be full cooperation between government, colleges and various sectors of society, creating a postgraduate innovative research platform which absorbs whole society force waits for no man.

**Acknowledgment**

This study is supported by Degree and Postgraduate Education Reform Fund of Hunan Province Ministry of Education (G2015B049); Reform and Practice of Training Mode foe Engineering Postgraduate Degree in Local Colleges, Hunan Province Ministry of Education.

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