



# Improve Quality and Efficiency of Social Services by Launching National Training Programs

Jiantong Song<sup>(✉)</sup>, Yuanfang Shi, and Zeting An

School of Automotive Engineering, Beijing Polytechnic, Beijing, China  
songjiantong@bpi.edu.cn

**Abstract.** During the construction of “Double High-levels Plan”, the professional group of automobile manufacturing and testing technology has made some achievements by carrying out integration between college and well-known enterprise. Teacher training bases have been jointly built and shared, and various professional standards were developed actively. Training objectives were set scientifically, and training contents were designed and planned systematically. In addition, an innovative teaching team was established to carry out national training projects. Professional experience has been formed and popularized.

**Keywords:** national training project · teacher training · social services · automobile · vocational education

## 1 Introduction

The construction of high-quality professional teachers is the fundamental guarantee to promote the scientific development of vocational education, and it is of great significance [1]. In order to promote and strengthen the construction of teachers and improve the quality of teachers in vocational colleges, the Ministry of Education and the Ministry of Finance jointly launched the national training plan in 2011 [2]. Focusing on improving the practical teaching ability of professional teachers, the training plan aims to cultivate a series of “double qualified” professional backbone teachers, which has gradually become an important means that relying on advantageous resources of national organizations to promote the improvement of teachers’ professional practical ability [3].

In order to carry out the implementation plan of national vocational education reform and in accordance with the spirit of the notice on organizing teacher training of 1 + X certificate system in pilot colleges (teacher bureau’s letter [2019] No. 43), the pilot work of X certificate has been promoted actively in Beijing, and the professional and technical characteristics of teachers have been strengthened. Cooperating with BAIC New Energy, Baidu and other well-known enterprises, the professional group of automobile manufacturing and test technology carried out the national training project of new energy vehicle assembly, adjustment and testing and 1 + X certificate excellent teachers’ training to effectively improve the quality and efficiency of training. Take the improvement of quality and efficiency of national training plan as the footing, the professional group helped to improve the professional ability of teachers and leaders [4].

## **2 Key Practices**

### **2.1 Increase Investment, to Jointly Build Training Bases by Colleges and Enterprises**

Relying on the modern manufacturing vocational education group, the college has established an automobile professional cooperation community and a council with 25 enterprises and institutions such as BAIC New Energy, Beijing Benz and China Society of Automotive Engineers. The college and enterprise have jointly built Beijing Benz automotive manufacturing engineer school, Daimler China automotive school and ARCFOX school, as well as many on-campus training bases such as BAIC New Energy training center, Jaguar Land Rover training center and KUKA training center. In addition, Beijing Benz training center, modern apprenticeship education center, Jaguar Land Rover Beijing excellence training center and other practical training bases have been built in enterprises such as Beijing Benz, BAIC New Energy and Jaguar Land Rover, with a total investment of more than 40 million yuan to jointly carry out teacher training and provide site service for teacher training.

### **2.2 Collaboration Between the College and Enterprise, to Jointly Operate Teacher Training Bases**

The college and enterprise have jointly established the operation and management organization for the training bases. The dean of the school of automotive engineering, the president of BAIC New Energy Blue Business School and the general manager of Beijing Benz Training Center have been appointed as the leaders of the training bases. A leading group and a working group were set up for vocational training. Regular meeting of the leading group would be held every six months to jointly study the construction plan, work tasks and cooperative projects of the schools of engineers. Regular meeting of working group would be held quarterly to decide on enrollment, talent training plan, curriculum system, modular curriculum construction, teaching organization, teacher team, employee training plan and other affairs. In case of special circumstances, meetings can be held at any time.

### **2.3 Professional Guidance, to Develop Actively Various Standards**

In order to adapt to the new strategic adjustment of the national automobile field, the professional group of automobile manufacturing and test technology has successively led the development of the teaching standards of automobile manufacturing and assembly technology, the national professional standards of automobile assembly and adjustment workers and the group standards of electric vehicle maintenance skills. Cooperating with the National Automobile (Beijing) Intelligent Connected Automobile Research Institute Co., Ltd., BAIC New Energy Automobile Co., Ltd, Beijing Zhuochuang Zhicheng Technology Co., Ltd. and other enterprises jointly developed the professional skill level standard of 1 + X intelligent connected vehicle testing, assembly and testing, the professional skill level standard of electric vehicle high voltage system evaluation and maintenance, and the professional skill level standard of new energy vehicle assembly and testing. In

addition, the professional group will integrate the standards of German Berlin automobile professional technology guild, British EAL and IMI vocational education standards, BAIC new energy, Beijing Benz, Chang'an Ford and other cooperative enterprises and national vocational standards into the curriculum standards and teaching practice, and aim to cultivate international technical and skilled talents required by enterprises.

#### **2.4 Research and Analysis, to Determine Scientific Training Objectives**

In order to ensure the clear purpose, accurate content, and appropriate method, in the early stage of the training, the questionnaire survey, discussion and exchange, personal interview, teaching plan analysis, classroom observation, literature research and other methods have been adopted comprehensively [5] to investigate and analyze the needs of the training objects of new energy vehicle technology, automobile inspection and maintenance technology, automobile manufacturing and test technology and other majors in secondary and higher vocational colleges. According to their real needs for new technologies of new energy vehicles, new processes of automobile manufacturing, teaching ability competition, guiding students' skill competition and other teaching reform problems, the training topics and objectives were set accurately.

#### **2.5 Overall Design, to Plan Training Contents Systematically**

The contents of the training courses should not only take into account the actual professional teaching needs and long-term professional development needs of the participating teachers, but also take into account the differences of vocational education teachers at different levels such as secondary vocational education, higher vocational education and vocational undergraduate education. Giving full play to the role of national moral demonstration courses, famous teachers and teaching teams, the moral education of the training course was designed systematically, and a moral education model based on typical work tasks has been formed, implementing the fundamental task of building morality and cultivating people [6]. Enterprise experts and university professors have been invited to discuss and plan the training contents of the integration of theory and practice, the combination of virtual and real, based on typical work tasks and the integration of "post course competition certificate".

#### **2.6 Integration Between College and Enterprise, to Build an Innovative Teaching Team**

The college has successively signed in-depth school enterprise cooperation agreements with Beijing New Energy Automobile Co., Ltd., BAIC bluepark Arcfox Automobile Technology Co., Ltd., Beijing Benz Automobile Co., Ltd. and Daimler Greater China Investment Co., Ltd., to jointly develop training programs, jointly prepare lessons, jointly deliver training, jointly develop training materials, and jointly guide students' practice, jointly evaluate the training quality and jointly carry out scientific research, and to build a "seven common" training teacher team with full-time and part-time combination and structured training teachers who understand both theory and practical operation,

understand the laws of vocational education and the career development of the enterprise, master the cutting-edge technology of new energy vehicles and deeply understand the new technologies, processes and methods of the enterprise.

### **3 Results and Effectiveness**

#### **3.1 Obtained a Number of Social Services Training Qualifications**

Cooperating with BAIC new energy, Beijing Benz, Daimler, Cummins and other well-known domestic and overseas enterprises, the training bases have successively been approved as the industrial robot technology training base of the education and examination center of the Ministry of Industry and Information, the “double qualified” teacher training base for automobile manufacturing and technical service majors in vocational colleges of Beijing Municipal Education Commission, the training institution for upgrading advanced industrial skills of new energy intelligent automobile industry of Beijing Municipal Commission of Science and Technology, the industrial robot technology high-end technology training base of Beijing Municipal Bureau of Economy and Information technology. Social trainings have been carried out in the training bases, such as technology improvement, vocational skill appraisal, teacher training, student practice, vocational enlightenment education and reemployment. These trainings are conducted for employees of social enterprises, teachers and students of colleges, primary and secondary school students and veterans.

#### **3.2 Won the Title of National, Provincial and Ministerial Teaching Team**

Based on Beijing Economic and Technological Development Zone and relying on BAIC new energy training, Beijing Benz Automotive Engineering School and other training bases, it serves the high-end vehicles, intelligent new energy vehicles and intelligent connected vehicles in high precision and advanced industry, cultivates high-quality technical and skilled talents who meet the development requirements of modern new energy and intelligent connected vehicle manufacturing industry, establishes an automobile intelligent manufacturing and service teaching team. The team has been successfully approved as a national moral education demonstration course, won the title of famous teachers and teaching teams, won the first prize in the teaching ability competition of the national vocational college skills competition and the high-level teaching team of continuing education in colleges and universities in Beijing.

#### **3.3 Effective Social Services**

In recent years, more than 2,000 person times of skill training and appraisal have been carried out for employees of Beijing Benz Automobile Co., Ltd., including auto assembly and adjustment workers, motor vehicle inspectors, auto welding workers, auto stamping workers and other types of work, as well as junior workers, intermediate workers, senior workers, technicians and senior technicians; and 40 person times of training on basic knowledge and skills of safe production and new energy have been carried out for

employees of Beijing New Energy Automobile Co., Ltd; and 20 person times of training on basic knowledge and skills of safe production and new energy have been carried out for the battery factory of Beijing Benz Automobile Co., Ltd.

### 3.4 Experience Summary

Firstly, to build a jointly managed teacher training base and build a community of a shared future, based on the cooperation between colleges and enterprises. Colleges and enterprises jointly invested to build a training base according to enterprise standards, to improve the utilization rate of the base, to introduce scientific operation and management mechanism, and to improve work efficiency.

Secondly, to enhance the influence of teacher training base by guiding by standards. Through various ways, both colleges and enterprises jointly strengthen the publicity of the teacher training base, and actively take the lead in developing relevant professional standards to enhance the influence of the training base in the industry.

Thirdly, in order to improve teacher team, the training objectives are set scientifically and the training contents are designed systematically. Through investigation and analysis, scientific training objectives have been set, and training contents have been designed and planned systemically. The team strived to build an innovative training teacher team and improve training quality.

### 3.5 Popularization and Application

Firstly, integration between the college and enterprises has a long history and diverse modes. Many well-known enterprises including BAIC new energy, Baidu Apollo, Beijing Benz, Daimler, Jaguar Land Rover, Peugeot Citroen etc. chose our profession group as the first cooperation college. The cooperation modes between the college and enterprises have been promoted all over the country.

Secondly, the moral education teaching mode based on the working process has been widely popularized and applied by other colleges. The moral education teaching mode based on the working process is applied to carry out teacher training. The moral education teaching mode has been popularized and applied in other colleges such as Beijing Jingbei Vocational College.

## 4 Conclusions

In order to implement the implementation plan of national vocational education reform, the professional group of automobile manufacturing and testing technology of Beijing Polytechnic jointly built training bases by colleges and enterprises, jointly operated teacher training bases, developed actively various standards, determine scientific training objectives, planned training contents systematically, built an innovative teaching team during the construction of “Double High-levels Plan”. After three years of construction, the school has obtained a number of social services training qualifications, won the title of national, provincial and ministerial teaching team, completed many social services, summed up a lot of experience, and carried out the promotion and application.

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## References

1. Qiao, Y. (2017). Reflection and practical discussion on the training of “national training plan” from the perspective of teachers’ professional development. *China Adult Education*, 08, 130–132.
2. Liu, X., Kuang, W., & Liu, X. (2016). Analysis and Reflection on the current situation of national vocational education and training in Higher Vocational Colleges in China. *Chinese Vocational and Technical Education*, 32, 83–85.
3. Cha, S., Fu, Y., & Jin, W. (2018). Top-level design and basic-level exploration: operation mechanism in national training program for primary and secondary school teachers. *Journal of Yunan Normal University (Humanities and Social Sciences)*, 50(01), 124–131.
4. Feng, X., et al. (2021). Teacher training helping teachers’ professional development improve in quality and efficiency—a research based on the annual comparison of the national cultivation plan. *China Educational Technology*, 07, 128–135.
5. Cai, J. (2018). On the quality control strategy of “national training program” project based on specialized process. *Educational Research*, 39(06), 119–123.
6. Zhu, L., & He, H. (2021). Precise research and training to improve the effectiveness of “national training” of key teachers. *School Administration*, 10, 47–49.

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