

The Realistic Dilemma and Improvement Strategies of the Management of the Experimental Training Room in China's Higher Vocational Colleges

Juan Wu*, Renzhen Meng

Institute of Higher Education, Shanghai Publishing and Printing College, Yangpu District, Shanghai, China

*Corresponding author

Keywords: Higher vocational colleges, Experimental training rooms, Realistic Dilemma, Improvement Strategies

Abstract: The construction level and operation efficiency of experimental training rooms in higher vocational colleges are to some extent the embodiment of their educational teaching level and vocational education attributes, and efficient and scientific management is the guarantee basis for the construction of experimental training rooms. This paper analyzes the problems existing in the experimental training room of China's higher vocational colleges in terms of management mode, teaching content, equipment purchase, team building, integration of production and education, and quality management and evaluation. Based on the current situation of the management of the school's experimental training room, targeted improvement strategies are put forward to improve management efficiency, give full play to the role of the experimental training room in cultivating technical and technical talents, and provide a solid guarantee for the cultivation of high-quality technical and technical talents.

1. Introduction

The construction of experimental training rooms in higher vocational colleges shoulders the important task of cultivating technical and skilled personnel, which is an important feature reflecting the attributes of vocational colleges and an important guarantee for the development of practical teaching. In 2013, at the 42nd WorldSkills Competition held in Leipzig, Germany, the Chinese delegation won 1 silver and 3 bronzes, as well as winning awards in 13 projects. ^[1] Shanghai Publishing and Printing College also won the first bronze medal for China's print media technology project, fulfilling the "Chinese Dream" of printers in the international skills competition, and also proving that vocational colleges can cultivate skills professionalism of talents. In 2014, at the executive meeting of the State Council, Premier Li Keqiang proposed to speed up the development of modern vocational education, and through the development of vocational education to promote the transformation of methods, structural adjustment and improvement of people's livelihood strategic measures. To run vocational education well with the idea of reform, promote the formation of a social atmosphere of "advocating the strength of one skill, not only academic qualifications by ability" ^[2], and stimulate the enthusiasm of contemporary college students to learn vocational skills. With the promulgation of the "National Vocational Education Reform Implementation Plan" and "Shanghai Deepening the Integration of Industry and Education to Promote the Construction of First-class Higher Vocational Education Pilot Program" and other documents, it has provided a strong basis for the construction and management of experimental training rooms. In 2021, the new "Vocational Education Law" mentioned four times to strengthen the construction of training bases, pay more attention to the integration of production and education, and guarantee it in the form of legislation. This move shows that the state attaches more importance to vocational education, and higher vocational colleges are an important part of vocational education. In order to implement the important task of cultivating high-quality technical and technical personnel, it is necessary to pay attention to the management of the experimental training room, the fermentation ground for technical and technical personnel training.

2. Analysis of the current situation and problems of the experimental training room in higher vocational colleges

In recent years, with the acceleration of the development of higher education and the deepening of teaching reform, the state has paid more attention to the construction of experimental training rooms. All colleges and universities have increased their investment in experimental training rooms, and the equipment of experimental training rooms has been rapidly improved. Update, the environment is constantly improving, but compared with the rapidly growing hardware of the experimental training room, the management of the experimental training room obviously lags behind.

2.1 The experimental training room is not enough, the students' practice hours are difficult to guarantee, and the training effect is unsatisfactory

It is clearly stated in the National Vocational Education Reform Implementation Plan that practical teaching hours in vocational colleges account for more than half of the total class hours in principle. The introduction of this policy undoubtedly provides a basis for the protection of practical credit hours, but many higher vocational colleges still do not pay enough attention to practical teaching. It appears powerless and inadequate. In the implementation of specific teaching, there will be more or less the problem of insufficient number of workstations for some training projects. Colleges often conduct training in groups, but after grouping, the multiple workload of teachers is often ignored, which is inevitable. frustrate the enthusiasm of teachers. Therefore, even if the practical hours in the training program are satisfied, the practical hours specific to each individual student cannot be guaranteed.

2.2 The training content is partial to verification and training, which is not conducive to cultivating students' creativity and does not meet the positioning of high-quality technical and skilled talents

The experimental training teaching of higher vocational colleges focuses on verification and repeated training, requiring students to operate according to the steps and methods in the fixed experimental training guide, and then complete the experimental training report according to the designed format. Although this arrangement can carry out practical demonstration of classroom teaching and obtain experimental training reports, it does not take into account the cultivation of students' inquiry ability and creativity, and is not conducive to the cultivation of students' creative thinking.

2.3 The decentralized management model is easy to cause repeated purchase of equipment and difficulty in sharing resources, and the laboratory utilization rate is not high

At present, the management of experimental training rooms in higher vocational colleges is still dominated by a decentralized management model. As the name suggests, each experimental training room is managed in a decentralized manner. This management mode is not conducive to the formation of an inter-professional and interdisciplinary comprehensive experimental training room, so it cannot meet the needs of cultivating compound talents. ^[3] Each reporting entity operates its own affairs and only starts from its own local interests, so that limited funds cannot maximize performance.

Decentralized management models often lead to repeated purchases of equipment and cannot achieve "Pareto optimality" of resources. Pareto optimality, also known as Pareto efficiency, Pareto optimal allocation, named after Italian economist Vilfredo Pareto, is an important concept in game theory. Pareto optimal refers to an ideal state of resource allocation that makes at least one person better off without making anyone worse off. ^[4] Each secondary college applies for the construction of experimental training rooms according to the needs of professional construction and curriculum. Because higher vocational colleges are mostly known for a certain characteristic, such as Shanghai Tourism College, Shanghai Agriculture and Forestry Vocational and Technical College, the former Zhengzhou Animal Husbandry Engineering College and our school, the school's main focus can be seen only from the school name. The major and its characteristics of running a school, this setting itself is suitable for the requirements of running a school, but it is undoubtedly inappropriate to

implement a decentralized management model for the experimental training room in such a school. First of all, the relationship between the various majors in such schools is relatively close, often forming a professional group, and the majors within the same professional group have their own priorities, however, it is absolutely impossible to cut off the connection. If you only apply for the construction of an experimental training room from the perspective of a certain major or a certain course, it will inevitably lead to different majors in the same professional group to repeatedly purchase certain equipment, which is not conducive to the optimal allocation of resources and causes huge waste, the “Pareto optimality” of the experimental training room resources cannot be achieved.

In addition, the decentralized management of laboratories in each secondary college, the school-level management department cannot deeply understand the daily operation and status of each experimental training room, which is not conducive to the school's overall management, and brings certain difficulties to the school-level management department. The experimental training rooms are relatively closed, the information is not open enough, there are barriers to management, and it is difficult to realize the sharing of resources such as experimental instruments and equipment. The direct problem is that the utilization rate of the experimental training rooms is not high.

2.4 The professionalism of the experimental training faculty still needs to be improved

In recent years, higher vocational colleges have paid more and more attention to the construction of teaching staff, so that the quality and quantity of the teaching staff have been optimized. However, the attention to the relevant personnel of the experimental training is still not enough. The number of management personnel in the experimental training room of the secondary college is small, the quality of the team needs to be improved, and less business training and advanced studies are arranged; In addition, their salaries are not high, and they also face difficulties in the evaluation of professional titles, making it difficult to mobilize their enthusiasm.

2.5 The relationship between the experimental training room and the industry has not yet reached mutual penetration

The new vocational education law clearly mentions that vocational education is an education type with the same important status as general education, an important part of the national education system and human resource development, and an important part of cultivating diverse talents, inheriting technical skills, and promoting employment and entrepreneurship. way. The biggest difference between higher vocational colleges and undergraduate colleges is the difference in training objectives. The former pays more attention to the cultivation of skilled talents, and has continuously broadened the depth of school-enterprise cooperation with the industry from the initial “school-in-factory” and “factory-in-school” to the current industrial colleges. However, the current integration of production and education is not deep enough. According to the survey, only 60% of Shanghai's 23 higher vocational colleges (application-skilled colleges and universities) have established industrial colleges, and the distribution of existing industrial colleges is seriously uneven, mainly in the categories of electronic information, culture and art, and equipment manufacturing. Classes and other 3-5 major categories of majors or professional groups. From the point of view of the management mechanism, there is still no independent person-in-charge system for industrial colleges. The development of industrial colleges still repeats the old way of conventional integration of production and education, and there is no breakthrough in the management mechanism. Whether the construction content of the experimental training room can be connected with the industry is directly related to whether the talents cultivated by the school can meet the needs of the market. In general, the state of mutual penetration between schools and enterprises has not yet reached.

2.6 Lack of evaluation and quality management mechanisms

Although the experimental training room of higher vocational colleges will be checked and accepted after completion, there is a lack of evaluation and corresponding quality management mechanism for subsequent management and use. On the one hand, there is a lack of dynamic monitoring of the use efficiency and teaching quality of the experimental training room. On the other hand, it is also necessary to supervise the management of the experimental training room.

3. Discussion on the countermeasures for the management of the experimental training room in higher vocational colleges

The management of experimental training room includes two parts: experimental training teaching management and experimental training work management.^[5] Therefore, teaching and management need to be taken into account. For the issues discussed above, in line with the principles of overall planning, refined management, and scientific development, and with scientific, long-term, systematic, and forward-looking construction standards, the management of experimental training rooms in higher vocational colleges should be in the following aspects be improved.

3.1 Strengthen process management to ensure students' practical hours

Pay attention to the implementation arrangements of experimental training teaching, strengthen teaching supervision, and conduct special inspections on some training arrangements that need to be implemented in groups to ensure that students practice hours. At the same time, reform the performance management model, fully consider the workload of teachers' group training, mobilize the enthusiasm of teachers, and fundamentally ensure the implementation of quality and quantity of training teaching.

3.2 Introduce high-skilled talents from enterprises, serve as part-time teachers in schools, and enrich the content of practical teaching

Theoretical knowledge must be organically combined with practical teaching. Theoretical knowledge provides systematic guidance to students, and practical teaching strengthens practical ability. The two are organically combined and cannot be separated. However, in practical teaching, a single teaching content cannot meet the requirements of education and teaching. Therefore, it is recommended that schools choose equipment from multinational companies and leading enterprises to purchase equipment during the construction of experimental training rooms, and sign strategic cooperation agreements with them. The equipment produced by these large enterprises has a high market share. Students operate these mainstream equipment and lay a good foundation for employment. At the same time, it can also carry out scientific research and social service work through cooperation with the sales team and R&D team. Finally, higher vocational colleges can also hire R&D teams from large enterprises to serve as part-time teachers to enrich the content of practical teaching. In addition, through research, it is also found that some higher vocational colleges are now trying to integrate classrooms, integrating “teaching, learning, and doing”.

The introduction of the experimental training room management platform is the general trend, and it has become a common practice in undergraduate colleges and universities. At present, many higher vocational colleges have also carried out information management on this. Especially when equipment asset management and experimental training room management belong to two departments, through the boundary of the management platform, the management department can effectively avoid the repeated purchase of equipment, and conduct checks and audits when applying for the construction of experimental training rooms. At the same time, the management platform can even count the utilization rate of the experimental training room and the utilization rate of equipment. In addition, the introduction of informatization is also an important guarantee for solving the current security management.

With the help of the experimental training management platform, the openness of the experimental training room is enhanced, and the latest status of the availability of the experimental training room of the whole school is disclosed in real time. On the platform, an online reservation function is set up, and teachers and students can make reservations online according to the status of the experimental training room. The experimental training room is no longer just an exclusive product for a certain course or major, and resources such as equipment have been shared. This approach can not only allow teachers and students to make appointments freely in their spare time, promote the improvement of students' practical ability, strengthen the connection between various majors, but also improve the utilization rate of equipment, and expand the benefits to teachers and students in the whole school, and even some students. Cooperative enterprises and institutions.

3.3 Develop a management model for the experimental training room in line with the school situation, introduce the experimental training room management platform, realize information management, and improve management efficiency

There are two main management modes of the experimental training room in higher vocational colleges: decentralized management mode and centralized management mode.^[6] As mentioned above, the former is no longer suitable for the current teaching requirements of the experimental training room. The centralized management mode is based on large-scale disciplines. It is a new experimental training room management mode proposed by some colleges and universities in recent years. The experimental training room is large in scale and has powerful experimental training functions, which can cover the entire discipline (Professional), which is currently the dominant management mode. Vocational colleges and universities should adopt different management models according to the development of various disciplines and majors in the school according to local conditions. It should account for the majority, and for individual majors that are still in development, the experimental training room can only be initially built according to the needs of the curriculum.

3.4 Establish a school-level experimental training center and attach importance to the construction and management of experimental training teams

The school-level experimental training center was established as the management department of the experimental training room, and unified management of the construction of the experimental training room and practical teaching. The establishment of the experimental training personnel of each secondary college is unified into the center. On the one hand, the professionalization of the experimental training teachers should be improved,^[7] starting from the perspectives of clarifying job responsibilities, formulating an evaluation system, improving the training system and improving overall quality. On the other hand, it can also strengthen the exchanges between the experimental training personnel of the secondary colleges and the exchange of information. In addition, it is necessary to improve the salaries of experimental training personnel, improve the evaluation and professional title evaluation mechanism, and stimulate the vitality of the team.

3.5 Strengthen school-enterprise cooperation and formulate institutional guarantees

Higher vocational colleges must strengthen the construction of school-enterprise joint experimental training rooms. Currently, schools and enterprises choose appropriate methods to build experimental training rooms according to their own advantages, needs, foundations and conditions, so as to achieve complementary advantages and win-win cooperation. This type of co-construction mainly includes school-led and enterprise-led. However, in the process of joint construction of many vocational colleges and enterprises, new problems have gradually emerged, mainly due to unclear responsibilities, rights, and benefits, the lack of deep school-enterprise integration, and the lack of pilot experience. The form of joint construction of experimental training rooms by enterprises often lacks stamina and becomes a mere formality. In the long run, it affects everyone's confidence in this form. Only by constantly exploring, trying, and slowly summarizing experience can we find a suitable path. In this process, the policy guidance and institutional guarantee for the joint construction of schools and enterprises is crucial. At the same time, it is also necessary to build a high-quality "double-qualified" training teacher team, aiming at school-enterprise cooperation and educating people, integrating training teaching content, and based on the in-depth participation of enterprises, jointly build a practice platform, and explore the management new mode of training bases.^[8]

3.6 Strengthen the management and evaluation of the whole life cycle of the experimental training room

Vocational education quality evaluation shows some common development trends, such as the evaluation object has changed from "input" to "output" and "result", and the evaluation goal has evolved to "continuous improvement". Education quality includes input quality, process quality and output quality.^[9] From the planning and construction of the experimental training room, the research on industry enterprises has been strengthened, and industry enterprise experts are required to

participate in the evaluation of the project. In the construction process and project acceptance stage of the project, the school sets up an expert acceptance team composed of industry enterprises and universities related to the experimental training room to control the construction quality of the experimental training room. The comprehensive evaluation of the experimental training room is a multi-indicator and multi-object evaluation problem, and the multi-indicator comprehensive index method can usually be used. ^[10] After the experimental training room is put into use, dynamic management is carried out by means of multiple evaluations such as on-campus supervision, student evaluation, and third-party evaluation.

4. Conclusion

In summary, with the development of the experimental training room of higher vocational colleges, the problems encountered are more diversified, and the requirements for management level are also increasing. Only scientific, standardized and refined management can meet the ever-changing development. The experimental training room of higher vocational colleges can only lay a solid foundation for the improvement of the quality of personnel training if the management is in place.

References

- [1] Yang Xiaodong. (2013) Chinese players won one silver and three bronzes in the 42nd WorldSkills Competition. http://news.xinhuanet.com/2013-07/10/c_124985581.htm.
- [2] Li Keqiang. (2014) Presided over the executive meeting of the State Council to deploy and accelerate the development of modern vocational education. http://www.gov.cn/ldhd/2014-02/26/content_2622673.htm.
- [3] Zhang Shuling. (2006) Analysis of problems and countermeasures in laboratory management in colleges and universities, *Experimental Technology and Management*, 1, 94.
- [4] Wei Guangjian, Lv Hao. (2008) On the Influence of “Pareto Optimality” on my country's Educational Management, *Journal of Hubei Second Normal University*, 3, 98.
- [5] Fu Shiping, Jin Shiwei. (2009) Analysis of laboratory management reform in higher vocational colleges, *Laboratory Research and Exploration*, 9, 176.
- [6] Zhai Xuedong, Liu Hongpu. (2006) Analysis and discussion of laboratory management mode in colleges and universities, *Laboratory Science*, 6, 84.
- [7] Sun Hui, Hong Mei, Chen Xu. (2021) Research on the professional construction of the management team of the experimental training room in higher vocational colleges, *Experimental Technology and Management*, 1, 223.
- [8] Qi Yali. (2019) Construction and Management of Training Bases in Higher Vocational Colleges Based on Innovation and Entrepreneurship Education. *Education and Vocation*, 16, 83-87.
- [9] Zhao Zhiqun. (2022) The logical exploration of the construction of vocational education quality evaluation system. *Vocational and Technical Teaching*, 13, 1.
- [10] Song Jian, Liu Yan. (2017) Comprehensive Evaluation of University Laboratory Efficiency Based on DEA Technology—Taking Guangdong Province Higher Vocational College Laboratory as an Example. *Science and Technology Management Research*, 7, 250.