

Exploration of innovation of experimental training management in higher vocational colleges

Songyu Yang^{1,a}, Xiaoling Liao^{1,b}

¹*Sichuan Technology & Business College, Dujiangyan, 511830, China*
^a3616600434@qq.com, ^b944620521@qq.com

Keywords: Higher vocational colleges, experimental training, management innovation.

Abstract: Higher vocational colleges aim at cultivating high-tech application-oriented talents suitable for production practice, and the experimental training room, as the organization and realization place of practical teaching, undoubtedly plays a crucial role. Vocational college students' professional and technical application ability is a meaningful way to analyze and solve problems and an essential link in the process of school education. Therefore, this paper puts forward methods to strengthen the construction and management of experimental training rooms and enrich the functions of laboratories. Improving the level of experimental teaching in schools is the key to cultivating innovative talents. Practical training is the central part of the teaching content of higher vocational colleges. This paper discusses how to do an excellent job in practical training, which involves many aspects, such as the design of open experimental training and experimental training programs, which all determine the experimental. It is the key to improving the teaching quality of higher vocational colleges that schools do an excellent job of practical training and training.

1. Introduction

The main goal of higher vocational colleges is to cultivate application-oriented high-skilled talents in the front line of production, construction, management, and service. To skillfully use high and new technology to creatively solve technical problems in production, construction, management, and service. Experimental training teaching is an essential part of higher vocational education, and teaching reform and innovation are imperative to adapt to the development of schools. To transform the experimental training teaching management system, opening experiments and setting up experiments in a single course or a single major will change to the mode of opening experiments and practical training teaching centers in scientific or professional categories. The reform and innovation of experimental training teaching should be based on the establishment and optimization of the talent training model, and the teaching reform of practical training should be integrated into the overall teaching reform and innovation. Experimental training teaching is a meaningful way to cultivate students' professional and technical application ability and ability to analyze and solve problems and is a vital link in the education process [1]. The construction and development of experimental training bases in higher vocational colleges are directly related to their own development and the realization of talent training goals. Strengthening the construction management and innovation of practical training in higher vocational colleges is a long-term and systematic project. Under the requirements

of the current talent training target system in higher vocational colleges, reforming the teaching methods of practical training experiments and actively promoting the construction of the experimental training teaching system are essential links in cultivating the practical ability and innovation ability of students in higher vocational colleges [2]. Therefore, it is necessary to fully understand the characteristics of education in higher vocational colleges, strengthen the management, reform, and innovation of practical training, ensure the smooth, orderly and efficient operation of practical training, and promote the overall teaching level of higher vocational colleges [3].

2. Research methods

This paper mainly adopts a combination of literature research, comparative research, and research and interview methods to conduct research:

2.1 Literature research method

The literature research method is also called the "documentation method" or "historical research method." Collection summary and application [4]. This thesis collects the writings, electronic materials, and data about higher vocational colleges through some vocational and technical libraries, the Internet, newspapers, magazines, databases, etc., and summarizes them for research and reference. The number of experimental training rooms in 20 higher vocational colleges was counted, as shown in Table 1:

Table 1: Number of experimental training rooms in twenty higher vocational colleges

Name	Department	The number of experimental training rooms
Economic and Management Professional Experimental Training Base	Department of Business	20
Financial and economic professional experimental training base	Department of Financial Information	14
Logistics Management Professional Experimental Training Base	Department of Logistics	12
Electronic Information Professional Experimental Training Base	Department of Electronics	16
Computer professional experimental training base	Computer Science	16
Experimental training base for foreign language majors	Foreign Languages	10
Art design professional experimental training base	Art Department	4
Music major experimental training base	Music Department	2
Total		94

2.2 Research and interview method

According to the content of the survey outline, the public computer room, accounting training room, physics laboratory, logistics laboratory, single-chip laboratory, electronic and electrical laboratory, speech laboratory, electronic laboratory, and software engineering experimental laboratory of some vocational colleges were inspected on the spot. Training room, software experimental training room, accounting consulting training room, simulated bank training room, financial laboratory, and much other public and unique experimental training rooms and other

experimental training rooms, the hardware environment of the experimental training room of a vocational college, software environment, equipment management, asset management, and management system construction have a more intuitive understanding [5]. At the same time, I watched the practical training courses of students from different departments on different campuses and talked with the students to understand the students' experiences and suggestions on experimental teaching.

3. School experimental training room research results

3.1 The phenomenon of resource duplication is serious

The experimental training rooms initially constructed by many vocational colleges are independently responsible by each department, but the department often only considers its own needs and ignores the maintenance of the overall interests. This makes the phenomenon of resource duplication very serious in many existing experimental training rooms. In essence, these resources can be used for general use, but due to the separate management of each department, there appears to be a waste of resources, but the actual utilization rate is shallow. At present, each secondary college or teaching department of higher vocational colleges has its own training center and training room. These training resources are relatively independent and are only used for the teaching, scientific research, and competition tasks of the department, not for other secondary departments. Or professional open use. There is a lack of resource sharing and communication mechanisms between the training centers of various secondary departments, and the resources between the training centers cannot be shared, resulting in repeated construction of experimental training rooms and waste of training resources.

3.2 The lack of justification for resource procurement

Most of the current higher vocational colleges ignore the process of scientific certification when purchasing resources. This makes the procurement behavior a mere formality, blindly pursues performance and price, the availability and feasibility of the procurement equipment are not fully guaranteed, and there are very few tasks such as external service work and social training, resulting in the training center's weak external service function. The workload of social training is insufficient. As a result, the construction of the experimental training room only outputs the capital cost but cannot obtain the related teaching resources.

3.3 Weak awareness of safety management

Most higher vocational colleges have the problem of attaching importance to complete construction and despising safety management. Specifically, it can be divided into two main phenomena: First, each department manages its own experimental training room, and the institution does not use the method of unified management. Second, some colleges and universities that carry out unified management do not connect the different nature and content of each laboratory in the setting of management methods but adopt a unified management model.

3.4 Lower requirements for the quality of students

The experimental training rooms of some higher vocational colleges only require managers but do not make precise requirements for students, ignore the training and improvement of experimental personnel, and lack the ability to organize experimental personnel to carry out exchange learning and

special training. Plan. However, students are actually the primary users of the laboratory, and their maintenance awareness and personal behavior will directly affect the service life of the internal software and hardware resources in the experimental training room.see Fig. 1.

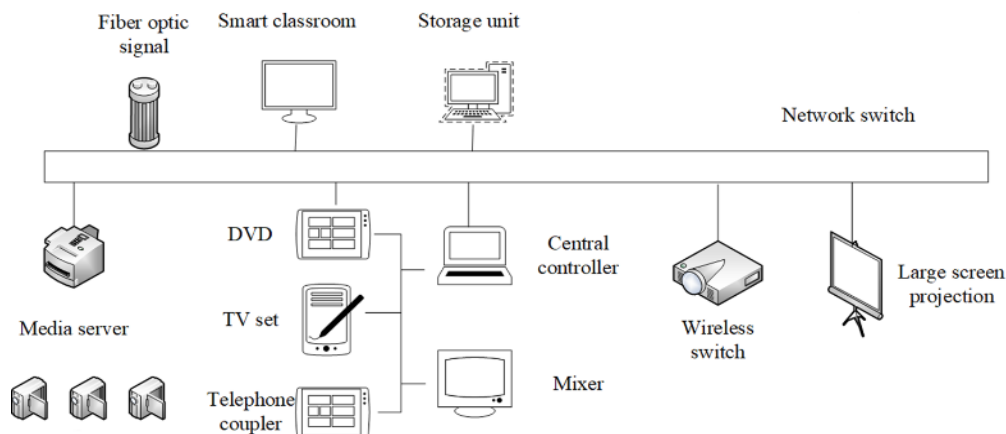


Figure 1: University experimental training room construction

3.5 Weak teachers

Most of the higher vocational and technical colleges have a small number of experimental training instructors. Students conduct theoretical learning in the classroom, and one teacher teaches 50 students. However, it is difficult for 50 students to go to the laboratory for one teacher. Carry out teaching and management because many factors have been added to teaching activities, such as experimental equipment, training consumables, student safety, etc. At the same time, many courses in higher vocational education need to be taught in the laboratory, which requires more teachers to engage in experimental training teaching. However, at present, a large part of the new teachers in China's higher vocational colleges are just graduated from ordinary colleges and universities, and there is no shortage of teachers. With professional practice experience and enterprise work background, there are very few skilled artisans from the front line of the enterprise, and their professional skills and practical ability are not high. It will take a certain amount of time to engage in practical training and teaching directly.

3.6 Experimental training teachers have low social and self-identity

In higher vocational colleges, experimental training teachers are listed as teaching assistants and are often considered to be simple jobs engaged in repetitive experiments. The experimental training room has even become a place for arranging idle personnel, so it does not receive due attention. Furthermore, training significantly dampened the enthusiasm of the experimental training teachers, causing them to feel uneasy at work or slack at work, and some staff left the experimental training room for various reasons. Higher vocational education aims to cultivate high-skilled applied technical talents. Higher vocational students spend most of their time in the experimental training room during their school studies. The experimental training instructors are also teachers, and their status in teaching activities should be the same as that of their majors. The status of theoretical course teachers is equal or higher, which can also encourage other non-experimental training teachers to enter the experimental training room to teach.

4. Analysis of the current experimental training management mode in higher vocational colleges

At present, most vocational colleges have a clear teaching orientation, focus on ability, highlight application, and practical ability, and most professional courses are conducted in the training room, but there are obvious problems in the ownership and internal management of the training room:

4.1 The functional orientation of the experimental training room is not clear

Some schools are positioned as teaching management service departments, some schools are positioned as teaching departments, and even the same school is not uniform in the positioning of training rooms of different departments. However, in terms of practical training, most the higher vocational colleges still carry out the class as a unit and implement single-paced teaching, which lacks a hierarchical and progressive system structure. Although this practical teaching mode is convenient for management and teaching, the effect of teaching is difficult to guarantee. Unlike other disciplines, innovation and entrepreneurship education has distinct personality characteristics. Students' knowledge levels, hobbies, personalities, and specialties vary widely, so practical teaching cannot engage in a cooperative teaching mode.

4.2 The functional boundaries of the experimental training room are not clear

The training room undertakes training teaching, service, social training, school-enterprise cooperation, and scientific research, resulting in the superposition of the tasks of the experimental training room. As a result, the classroom teaching time of practical training in most vocational colleges is insufficient, and the practice content is not closely connected, showing "fragmentation." Although some colleges and universities also carry out second classes and various competitions, the number of participants is small, so most students cannot get systematic practical training.

4.3 The ownership management of the experimental training room is not transparent

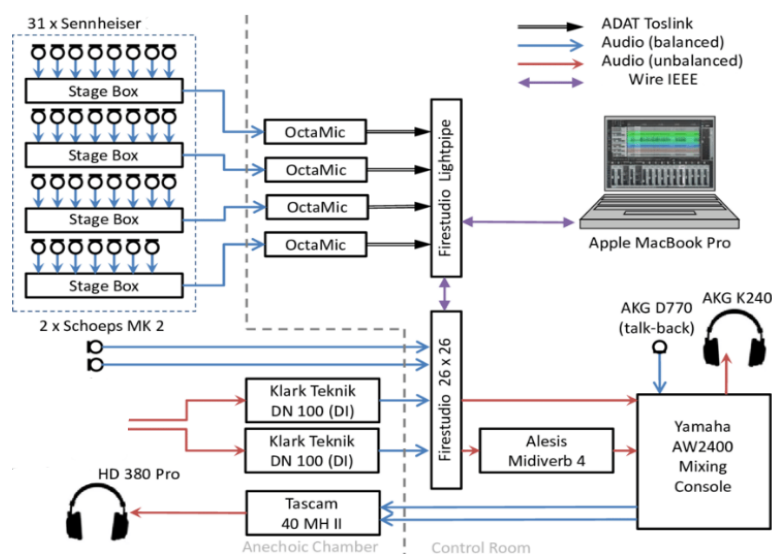


Figure 2: Construction block diagram of school experimental training room

Absence and offside coexist in the management of colleges and departments and the unified

management of the school, as well as mutual wrangling and shirk. The setting of management departments and functions does not clearly reflect the uniqueness of higher vocational education. The experimental training room is directly managed by the school, the experimental training room is an independent organization, and the equipment and personnel belong to the school where the experimental training room is located to undertake the experiments of the department. Teaching tasks and experimental teaching arrangements have broken the characteristics of classification by courses, and teaching arrangements are centrally managed by the school.see Fig. 2.

4.4 The experimental training team

The development channel is not smooth. Whether the staff in the experimental training room is a teacher's post, a teaching assistant's post, or a worker's post, has different positions in different schools, and the development channel is naturally not smooth. After years of development in colleges and universities, there are many teachers with rich theoretical teaching, but there is generally a lack of practical teachers, especially those with industry backgrounds. Innovation and entrepreneurship education is an efficient curriculum system that requires a large number of practicing teachers. The practice level of teachers directly determines the practice of innovation and entrepreneurship. Effect.

5. Suggestions for experimental training in higher vocational colleges

In the practical training, the practical training must have a clear experimental training purpose. Before the experimental training, the students must clarify the model, function, operation method, operation precautions, and operation steps of the equipment used. In the process of experimental training, it is necessary to know the function of each step and why it is done. After the experimental training, there must be a summary. In addition to the experimental training report after each experimental training, teachers and students must have a corresponding experimental training summary.

5.1 Objective and task of experimental training

The experimental training should combine the traditional experimental training method with the open experimental training. In the traditional experimental training teaching, the experimental training teacher is the main body of imparting knowledge and skills, while the students passively accept the knowledge and skills. In order to improve students' hands-on ability, cultivate students' innovative awareness, and enhance students' interest in experimental training, it is necessary to do some open experimental training on the basis of doing well in the prescribed experimental training.

5.2 Teachers carefully design the content of experimental training

Teachers should carefully design the content of experimental training. Teachers dispel entirely the concept that experimental training is only to complete the teaching task of experimental training. The content of experimental training should not only have the essential content required by the teaching content and cultivate students' basic operational skills but also take into account the cultivation of students' innovative skills, which have increasingly become the most essential and critical part of professional ability. The design of the experimental program must be carefully considered and carefully designed, and it must fully reflect the combination of the training of essential skills and the training of innovative skills. When designing the experimental training program, on the premise that students are required to complete specific experimental training plans and requirements, the tutorial

can encourage and guide students to not stick to the practice in the tutorial.

6. Innovation to comprehensively enhance the function of the training base on campus

In the process of constructing the core experimental training system, the basic principles are based on job ability requirements, focus on experimental training operations, and strengthening of basic skills, and integrate relevant experimental training courses with practicality, practice, and effectiveness as the basic ideas. The utilization rate of various teaching resources such as teachers and laboratories, on the other hand, allows students to master different experimental training operations and solve some common problems in experimental training. Students conduct experimental training operations in a natural professional environment and can master professional skills more systematically.

6.1 Principles of innovation

The school has increased capital investment to meet the training needs of students. In the construction of experimental training rooms, higher vocational colleges should introduce funds from multiple channels to improve the practical conditions of students and recruit them at the same time. Grasp the development trend of disciplines and ensure the forward-looking construction of experimental training rooms.

In order to create a growth environment that can cultivate applied talents, higher vocational colleges must stand at the forefront of technological development in the construction of experimental training rooms and track and predict the development of technology. For laboratory instruments and equipment with particularly rapid technological updates, on the one hand, the training needs are met in off-campus training bases through school-enterprise cooperation; on the other hand, experimental training rooms with similar majors are used for training. For majors whose technology update rate is not fast, higher vocational colleges need to conduct in-depth research to achieve forward-looking construction.

6.2 Construction of key experimental training rooms

In order to cultivate applied talents, higher vocational colleges often have distinctive school-running characteristics. In order to further highlight the school-running characteristics and professional setting characteristics of higher vocational colleges, in the construction of experimental training rooms in higher vocational colleges, it is necessary to focus on supporting the construction of laboratories that fit the school-running characteristics of higher vocational colleges. Pay attention to cultural construction and improve the professional quality of students. Cultural construction is an indispensable and vital part of the construction of the experimental training room. It mainly includes basic information, safety signs, rules and regulations, post standards, professional norms, behavior etiquette, etc. A meticulous scientific attitude is conducive to stimulating students' desire for knowledge and also conducive to cultivating students' behavior habits and professional ethics.

6.3 School innovation mechanism

An experimental training base is a place for students to learn basic skills, apply comprehensive skills, and cultivate innovative abilities. It has relatively complete instruments and equipment and can carry out comprehensive skills training programs to provide guarantees for the improvement of students' comprehensive ability. Use evaluation and assessment to explore the comprehensive functions of the experimental training base. Change the individual skill operation practice into multi-

disciplinary integrated, comprehensive training, develop the conventional machining operation into the introduction of computer-aided design, network technology, and simulation technology into practical training, and establish a system-oriented to the whole process of design, technology, and production. The practical teaching mode establishes an effective training process for students' practical ability and innovation ability.

6.4 Develop an innovation system

Expand the interface between training bases and industrial development. In addition to using complete instruments and equipment to carry out comprehensive skills training projects for students, the experimental training base should also form a particular self-hematopoietic function through effective training and technology development to achieve social services and training base construction. Positive interaction. Introduce the market operation mechanism and set up a productive teaching factory so that students can conduct professional training in a natural production environment without leaving the school. Through construction, the training bases of the college are now basically connected with the development of the industry.

It has further improved the pertinence and effectiveness of the college's engineering-study alternate practice teaching and realized the combination of skilled personnel training, enterprise employment needs, and economic development needs.

6.5 Construction of experimental training teachers

Whether it is from the perspective of improving the teaching level of higher vocational colleges or from the perspective of caring about the personal development of experiment and training teachers, it is necessary to treat experiment, training teachers, and theoretical teaching teachers as equal subjects in the teaching activities of higher vocational colleges. It is an effective measure that meets the management requirements of the teaching staff and the spirit of building a harmonious campus. The formulation of scientific and reasonable policies will inevitably lead to breakthroughs in the construction of experimental and training teachers and will bring new impetus to the development of higher vocational education in China.

7. Conclusion

In recent years, with the gradual and large-scale expansion of higher vocational colleges, if the previous single management and construction of practical training resources are used, it is basically impossible to complete the rational allocation of experimental training resources. Carry out innovative explorations in management methods, closely combine the needs of the development of the times, and establish innovative higher vocational colleges and innovative experiments that follow the pace of the development of the times from various dimensions such as the construction management, teaching management, and teacher management of experimental training rooms. Training room to cultivate professional talents who meet the needs of the development of the times. In the face of experimental training, higher vocational colleges should abandon the idea of utilitarianism and combine their own advantages and characteristics to create distinctive higher vocational colleges.

References

- [1] Chen Ningning, Zheng Yuhua. *Construction and Management of Open Laboratory. Laboratory Research and Exploration*, vol. 12 (2020), 72-78.
- [2] Ye Yi. *Practical research on improving the effectiveness of on-campus training bases in higher vocational colleges.*

Education and Vocation, vol. 14 (2021), 102-104.

[3] Xu Jianpeng. *A Preliminary Study on the Reform of Experimental Teaching and Laboratory Management in Ordinary Colleges and Universities*. *Theoretical Research and Practice of Innovation and Entrepreneurship*, vol. 10 (2020), 121-125.

[4] Yang Gang. *Maker Education: A New Path for the Development of Innovative Education in China*. *China Electronic Education*, vol. 09(2021), 96-98.

[5] Jia Bai. *Research on the development of school laboratory construction*. *Practical teaching*, vol. 10 (2020), 311-314.