



Construction and Management of Innovation and Entrepreneurship Laboratories in Colleges and Universities

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How to cite this paper: Guodong Shi. (2022) Construction and Management of Innovation and Entrepreneurship Laboratories in Colleges and Universities. *Engineering Advances*, 2(2), 186-190. DOI: 10.26855/ea.2022.12.008

Received: November 20, 2022

Accepted: December 18, 2022

Published: December 30, 2022

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Abstract

With the advent of the information age, the demand of society for innovative talents is increasing, and colleges and universities are an important place for talent cultivation, so the education department is gradually promoting innovation and entrepreneurship education in colleges and universities. Laboratory is an important way to carry out practical innovation in many colleges and universities, and plays an important role in innovation and entrepreneurship education in colleges and universities. However, there are still some shortcomings in the construction and management of college laboratories, such as unreasonable management mechanism, insufficient faculty strength and insufficient openness, etc. Therefore, it is quite important to improve the construction and management of college laboratories. This paper takes the college innovation and entrepreneurship laboratory as the starting point and proposes some measures and suggestions for the problems in its construction and management, aiming to forge an excellent laboratory, improve the experimental and scientific research level, and then achieve the ultimate goal of improving the effectiveness of college innovation and entrepreneurship education.

Keywords

Colleges and universities, construction and management, innovation and entrepreneurship laboratories

Introduction

The construction and management of laboratories can fully reflect the teaching quality, research technology and management level of a university. In the innovation and entrepreneurship education, the laboratory is an indispensable part, and an excellent laboratory can not only provide important technical support for scientific research and students' entrepreneurship, but also cultivate students' innovation and practical ability, and lay a solid foundation for students' future employment. Thus, the construction of college innovation and entrepreneurship laboratory is of great significance to the development of students and schools. However, with the continuous expansion and deepening of education and teaching contents, some university laboratories can no longer meet the requirements of scientific research of the university, and there are some loopholes in the laboratory management, which affect the effect of scientific research and innovation teaching in universities. Therefore, college laboratories should conform to the needs of the times and society in construction and management, deepen the reform of experimental teaching, improve the management system of laboratories, strengthen the construction of laboratory teachers, and improve the quality of experimental teaching in all aspects.

1. Analysis of the role of laboratory for innovation and entrepreneurship education in colleges and universities

1.1 Provide important technical guarantee for on-campus experiments and research

In the past, practical teaching was relatively missing in traditional teaching. The construction of laboratory can promote the effective combination of practical teaching and theoretical teaching in universities. After theoretical study, students need practical teaching to consolidate their knowledge and improve their ability [1]. The laboratory provides a platform for students to understand what they have learned through scientific experiments, stimulates students' enthusiasm for learning, interests in exploring problems, cultivates students' creativity and practical ability, and is the main position of innovation and entrepreneurship education in universities.

1.2 An important place for teachers to get nutrients and improve their research guidance ability

In the process of laboratory practice, students' professional basic knowledge and practical ability vary, so they need teachers' guidance, and teachers' scientific research ability and guidance ability can be improved in the process of guidance, so the laboratory is also an important place for teachers to learn nutrients and improve their own ability. In addition, in the process of guiding experimental activities, teachers are able to discover the shortcomings of students, which can provide teachers with new ideas and materials for their research and teaching, and continue to deepen their research to reach a new level [3]. Scientific research and experimental instruction in the laboratory can greatly improve the teachers' ability to teach.

1.3 Highlight practical education and enhance students' practical innovation ability

The setup of the laboratory in the university fully highlights the importance of practical education, actively encourages students to be innovative and fully participate in scientific research, and comprehensively strengthens students' creative ability and comprehensive literacy. In the process of entering the laboratory for scientific research, students not only have to operate the actual equipment, but also have to review the literature, understand the experimental skills, be able to analyze the various problems that arise during or after the completion of the experiment, and have the ability to solve problems, so as to enhance the practical ability of students. As the students gradually go deeper into the laboratory to carry out various scientific research, they have also achieved good results, and the students are gradually approaching the direction of comprehensive personnel training in which experimental ability and theoretical learning ability go hand in hand. The laboratory is the first channel to combine practice and theory, and it is an important place to cultivate students' comprehensive abilities, which can effectively stimulate students' enthusiasm and creativity and help them in their future career.

2. Analysis of the construction and management status of innovation and entrepreneurship laboratories in universities

2.1 The management mechanism of laboratory is not perfect

The arrival of the information era has continuously promoted the development of modern education, and the laboratory construction occupies an important position in modern higher education. Universities have begun to recognize the importance of laboratory construction and gradually expand the scale of laboratories to provide students with comprehensive and new experimental places [2]. Although the scale of laboratory has been expanded, many universities still use the traditional laboratory management mechanism in laboratory management, and the deficiencies in laboratory management under this old mechanism gradually appear and directly affect the practical teaching of students. Secondly, under the traditional management mechanism, it is easy to have blurred management convenience and overlapping management functions, which affects the use effect of the laboratory and the role of practical teaching cannot be given full play.

2.2 Weak faculty strength in the laboratory

Since innovation and entrepreneurship education in colleges and universities is rarely treated as an independent discipline, there is often a lack of specialized teachers in practical teaching, and many practical courses are taught by teachers from other disciplines on their behalf. Therefore, in the process of laboratory teaching or guidance, teachers tend to confuse their own teaching experience, especially some teachers who have no experience in innovation and entrepreneurship, and focus on theoretical teaching in the process of teaching, thus failing to achieve good practical teaching effect and students' ability is not improved. The students' ability is not improved.

2.3 The laboratory evaluation system is not perfect

The assessment system is also the focus of promoting the laboratory construction in colleges and universities, but there is an incomplete situation in the process of evaluation in some colleges and universities, and one of the main reasons is the limited means of evaluation. The current method adopted for laboratory evaluation is mainly based on a combination of quantitative statistics and qualitative analysis [4]. This method can objectively reflect the construction and management of laboratories, but there is still some ambiguity in the evaluation criteria, and some evaluation elements are difficult to be quantified, which is difficult for the evaluation of laboratories.

2.4 The openness of the laboratory is not enough

The opening time of laboratories in some universities is limited and closed for a long time, which causes many students to participate in experimental teaching for less time, making it difficult to achieve the purpose of innovation and entrepreneurship education. In addition, coupled with the fact that the laboratory itself is imperfect in operation as well as management mechanism, the

3. Construction and management measures of innovation and entrepreneurship laboratory in colleges and universities

College students are one of the most innovative and entrepreneurial potential groups, and college laboratory is an important place to stimulate students' innovative and entrepreneurial ability, so that students can improve their innovative and creative ability through scientific research and promote overall development. However, according to the current analysis, there are still some shortcomings in the process of construction as well as management of college laboratories. In the following, we propose reasonable measures according to these shortcomings, aiming to improve the management of college laboratories, optimize the management of college laboratories and bring the effect of laboratories into full play.

3.1 Optimize the management mechanism of college laboratory

With the increase of universities' attention to laboratories and the expansion of laboratory scale, the traditional management methods in the past are not only not applicable anymore. There are many majors involved in colleges and universities, and the experimental contents and projects are also huge, in order to further improve the utilization rate of laboratories. For example, we can adopt the way of linkage management, strengthen the connection between various disciplines and majors, and unify the laboratories with the same role to one laboratory, which not only can save the cost of experiments, but also can promote the integration of resources, and then realize the utilization rate of laboratory resources. Secondly, universities can also adopt an open management mechanism, so that the laboratory can not only be used as a place for scientific research and innovation, but also be used for teaching and research of students of various majors, which greatly improves the utilization rate of the laboratory, expands the open objects of the laboratory, and plays an important role in the cultivation of students' innovation ability and practical ability [5]. Finally, on the basis of optimizing the management mechanism, the university should also strengthen the implementation and management of the system, reasonably allocate personnel and implement responsibilities to ensure the effectiveness of laboratory management.

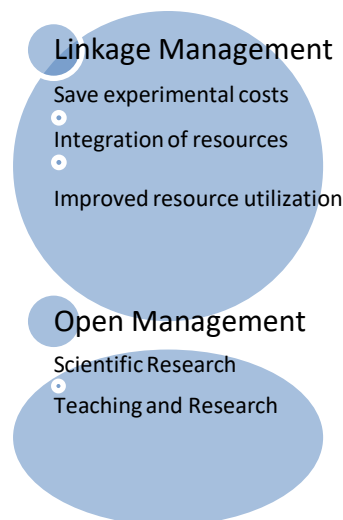


Figure 1. Two Management Mechanisms.

3.2 Strengthen the construction of teachers and optimize practical teaching

In the process of construction of innovation and entrepreneurship laboratory, the faculty is weak, and the teachers are not high in professionalism. Therefore, the key to enhance practical teaching in colleges and universities is to build a professional experimental teaching team and improve the effect of experimental teaching. Firstly, introduce high-quality and professional laboratory teaching staff, inject fresh blood into the laboratory, increase the number of laboratory teachers, researchers and relevant instructors to make up for the deficiency of insufficient number of teaching talents. Secondly, the university should improve the treatment of laboratory teaching staff and establish a set of corresponding reward and punishment as well as assessment mechanism to enhance the status of laboratory teaching staff and improve the stability of the laboratory teaching team in colleges and universities. Third, on the basis of improving the number and treatment of laboratory teaching staff, the management training of the existing teaching staff should not be neglected, and training sessions should be organized or exchanges between the teaching staff of the university and laboratory teaching staff of other schools should be strengthened to improve the ability and quality of the laboratory teaching team, so as to better serve the laboratory and students of the university.

In order to further optimize the effect of laboratory practice teaching, we can also adopt the system of "mentor system" to differentiate teaching according to students' learning situation and ability, effectively use university laboratories to cultivate students' innovation and entrepreneurial ability, and promote students' personalized development.

3.3 Strengthen laboratory assessment and enhance the utilization rate of experimental equipment

Carrying out effective assessment is an important measure to strengthen the effect of laboratory management and improve the level of practical teaching. However, the traditional assessment methods have certain shortcomings, which are not conducive to the reform and development of laboratories. Firstly, colleges and universities should improve the index system of laboratory evaluation and conduct comprehensive evaluation, not only for college self-evaluation, but also for school evaluation and college mutual evaluation to ensure the comprehensiveness of evaluation. Secondly, the laboratory evaluation of colleges and universities in the information era should be developed in the direction of digitalization, so as to facilitate the collection and search of data.

For the situation that the utilization rate of laboratories in some universities is not high, schools should improve the openness of laboratories. First of all, expand the open objects of laboratories, which can be open to all teachers and students of the university. Secondly, extend the opening hours of laboratories, create conditions for students to practice innovation and entrepreneurship, so that students can use the laboratories most of the time, improve the utilization rate of laboratories and enhance the effect of experimental teaching.

3.4 Strengthen the cooperation between schools and enterprises, and strengthen the construction of key disciplines and laboratories

One of the purposes of building laboratories in colleges and universities is to improve students' innovation and practical ability, so that they can better participate in the social work. Therefore, universities can work together with enterprises to consolidate the construction and management of laboratories, and let students participate in the production of products and production processes of enterprises, so as to let students go deeper into the market and provide them with more opportunities to practice, which is conducive to their better integration into society, which is important for their personal development. This is important for students' personal development. The school-enterprise cooperation in construction and management of the school from the realistic point of view, can break away from the constraints of textbooks and schools, solve the difficulties of contemporary scientific research, improve the students' research ability, and promote the progress of enterprises and universities together.

Schools should also focus on the construction of key subject laboratories in the process of laboratory construction, so as to drive the development of key subjects. Universities should clarify the direction of their own development, do a good job of positioning, combine the school's advantages and resources to build laboratories with characteristics, to create high-quality, high-level laboratory, comprehensive services for students.

4. Conclusion

High school laboratories play a rather important role in the innovation and entrepreneurship education activities in colleges and universities, especially when it is at the university level, where students' various abilities are in a critical period of development. Colleges and universities also begin to realize the importance of laboratory construction, but various problems exist in the process of laboratory expansion in schools, imperfect management system, weak faculty, low utilization rate of laboratories and other problems will directly affect the innovation and entrepreneurship teaching situation in schools. Therefore, universities should strengthen laboratory construction, optimize laboratory management, explore the important means to enhance the practical innovation ability of universities from the three aspects of man-

agement mechanism, faculty construction and evaluation mechanism, and then cultivate students' innovation and entrepreneurship ability and improve students' practical ability comprehensively.

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