

Laboratory Safety and College Students' Psychological Education Innovation Training Mode and Effect Analysis

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Abstract: School laboratory safety education is an important link in the cultivation of talents in colleges and universities. Facing the new situation of the reform of large-scale enrollment and training, the electrical and electronic teaching experiment center of xi'an jiaotong university has summarized years of experience in safety education, making full use of network means and teaching platforms to study college laboratory experiments. The importance of laboratory safety education and training is analyzed, the characteristics and existing problems of university laboratory safety education and training are analyzed, and a new model of university laboratory safety education and training is created. The new education model has various forms, wide coverage, clearer rights, and responsibilities, strengthens the safety responsibility awareness of experimenters, improves the safety management level of laboratories, promotes the construction of laboratory safety culture, and provides a solid guarantee for the normal operation of schools and scientific research work.

Keywords: Laboratory safety, psychological education, innovation training, effect analysis

1. INTRODUCTION

University laboratories are an important place for basic practical teaching and scientific research, an important platform for cultivating college students' basic practical ability and innovation ability, and an important guarantee for creating first-class universities and first-class disciplines. With the innovation and reform of experimental teaching and the continuous development of scientific research, the opening degree of university laboratories is getting higher and higher, and the emphasis on laboratory safety and the cultivation of college students' laboratory safety awareness have become an important guarantee for the safe and stable operation of university laboratories and the sustainable development of universities. A safety accident in a university laboratory, whether it damages the equipment, burns down the experimental environment, or even causes casualties, will bring serious losses to the country and society. It will not only interfere with the normal teaching and work of the school, but also affect human health. Hazard to life safety.

An explosion occurred in a chemical laboratory of a university in Sichuan during an atmospheric fluidized bed coating experiment, injuring three students: a college student in the United States died when his hair was winched into the lathe while operating a lathe in the mechanical room of the laboratory building; a university in Northeast China 28 teachers and students were infected with brucellosis due to animal experiments. These bloody lessons further illustrate that carrying out laboratory safety education and training and emphasizing the importance of safe experiments is a necessary way to ensure normal work and teaching order and personal safety. Facing the increasingly complex laboratory safety education environment, colleges and universities are constantly exploring various ways and methods to carry out laboratory safety education, such as: incorporating laboratory safety education into the freshman admission education, conducting laboratory safety lectures, and holding safety knowledge contests, increase laboratory safety publicity through campus safety broadcasts, open up an experimental safety column in the special issue of the school newspaper, and compile the "experimental safety manual" and so on.

However, limited by factors such as insufficient educational resources, for low-grade students, there is no systematic laboratory safety knowledge education, insufficient professional knowledge support, and a comprehensive understanding of the laboratory structure and performance of related instruments, which cannot form a mature laboratory. In the face of unexpected laboratory accidents, timely and effective measures cannot be taken; senior students are in the state of independent experimental research most of the time, lengthy and complicated experiments make the laboratory safety of senior students consciousness is in a state of fatigue, which increases the chances of laboratory accidents.

Many colleges and universities are carrying out multi-disciplinary comprehensive education models such as arts, science, technology, agriculture, and business. Laboratory safety knowledge training can improve the safety awareness of laboratory personnel and enhance people's ability to deal with sudden safety accidents. Laboratory safety knowledge training is an experimental It is an indispensable part of indoor safety management. However, most colleges and universities in our country basically carry out safety education for students by carrying out safety knowledge lectures at the early stage of entering the school, and laboratory safety is only explained as a chapter. At this time, the freshmen who have just entered the school have no contact with various work in the laboratory and have no clear conceptual guidelines for laboratory safety. The effect of safety education achieved by only teaching and explaining with pictures and texts is also conceivable. Therefore, a complete laboratory safety knowledge training system is necessary.

2. THE PROPOSED METHODOLOGY

2.1 College students' psychological education innovation training innovation

Coupled with the fact that interdisciplinary research is one of the most important and mainstream development directions of current university research institutions, this requires experimenters not only to master the original professional experimental safety guidelines, but also to keep in mind the experimental safety regulations in various fields involved. To

avoid accidents caused by unskilled operation and insufficient risk foresight ability. However, if the knowledge of safety experiments in all fields is uniformly instilled in every experimenter, not only will it not attract more attention, but it will put more pressure on everyone. Therefore, for a university, in the face of a wide coverage and a wide variety of experimental management, the teaching content of safety education should also be adjusted according to different research directions. In the era of rapid network development, to expand the radiation surface of laboratory safety education and comprehensively improve students' laboratory safety awareness, the laboratory conducts laboratory safety education activities on the platform of the official network and WeChat public account of the electrical and electronic teaching experiment center.

The college conducts laboratory safety inspections from time to time, displays the safety inspection results through the network platform, urges students to abide by the laboratory use guidelines, standardizes experimental operations, and improves laboratory safety awareness. At the same time, use the network platform to broadcast major laboratory safety accidents in universities across the country in the form of videos and pictures, increase students' sensory awareness of laboratory accidents, further strengthen students' laboratory safety awareness, and improve students' ability to deal with emergencies. Everyone's experimental work is different, and the degree of safety education they need is different. On the other hand, there is a large turnover of laboratory personnel, frequent use of instruments, and everyone's familiarity with experimental operations is different. It takes a lot of energy for the laboratory administrator to manage and guide them one by one, and the effect is not good. Therefore, it is necessary to have a complete training system and comprehensive training materials to ensure that the experimenters can receive sufficient experimental safety training in every link.

Colleges and universities are important places for teaching and educating people and scientific research. They are places where teachers and students concentrate on learning, teaching, and scientific research activities. Their environment and the safety of life and property are widely concerned by all walks of life and thousands of households. Especially for the students who have gone through ten years of hardship and finally entered the gate of colleges and universities through their own efforts, they bear the trust of the family and the responsibility of the society, shoulder the heavy responsibility of the country and the hope of the nation, and the whole society has the responsibility and obligation to protect their safety and ensure their healthy growth. If life is not guaranteed, how can we talk about education. Colleges and universities must enhance the sense of mission and urgency to do a good job in the comprehensive management and stability of school safety, strengthen the education and training of campus safety, especially laboratory safety, and earnestly assume the responsibility of protecting the lives and property of teachers and students, and create a safe environment for colleges and universities, civilized, harmonious and stable environment. Use the network to establish a specific laboratory safety education assessment test question bank according to the characteristics of each laboratory and formulate a corresponding assessment system. Before the start of each semester's experimental course, students must participate in the laboratory safety education series of lectures, and then log in to the test question bank for the test. Only those who pass the assessment system can gain access to the laboratory, and the importance of laboratory safety will be

deepened in students' minds in the form of assessment to ensure the safety and stability of laboratory work.

2.2 Undergraduate Psychology Applied to Laboratory Safety

The establishment of a stage inspection and reward and punishment system, the rapid progress of research in colleges and universities, makes the content of experimental teaching and experimental research updated rapidly. Discover the existing safety hazards and commend and encourage the participating units and individuals who earnestly record the safety experiments, do a good job in safety inspections, and standardize the operation experiments. Safety education is an important part of campus safety culture construction. Laboratory is an important place for teaching and scientific research on campus. Its safety culture construction is the soul of campus safety culture. Lessons, formed in the practice of laboratory safety management, are a comprehensive reflection of the safety awareness, attitude, quality and emergency response capabilities of teachers and students on campus, and their importance and necessity are becoming increasingly apparent.

For comprehensive colleges and universities, each laboratory has its own working characteristics. In addition to basic safety training, corresponding safety education and training programs should be designed in combination with the characteristics of each major and experiment. First, according to the identity and research level of the experimenters, the safety education level is divided into three levels: basic, professional, and research. The basic level mainly includes the most basic laboratory safety knowledge and is mainly aimed at safety education and training for freshmen and basic experimenters. Professional level mainly involves the requirements of experimental courses and experimental teaching of various majors and is mainly aimed at safety education and training for undergraduates, senior students and professional experimenters. As the leader of cultural inheritance and innovation, colleges and universities must make a difference in the construction of campus safety culture and must assume the role of leader.

Carry out safety education and training for students, so that they have the quality of safety culture, become qualified builders and leaders of social development, and help to improve the safety culture level of the whole society, and become disseminators of safety culture in the whole society. To become a leader, colleges and universities must build their own campus safety culture environment, form a complete safety culture system, and become a model for all walks of life to learn from. All professional experimenters must fully grasp the basic accident prevention measures, set an example and use the laboratory strictly in accordance with the laboratory management regulations; learn scientific and reasonable laboratory layout, and scientific regional distribution is conducive to the installation and pollution of various safety protection facilities the quality of the laying of water, electricity, gas and other pipelines and the level of safety protection facilities will affect the use, extension, transformation and other activities of the laboratory; related majors must learn gas explosion, poisonous and harmful gas diffusion, corrosive self-protection and protection of social resources in hazardous situations such as liquid hazards.

3. CONCLUSION

This paper conducts in-depth research on the working methods and mental health construction of laboratory safety education and training in colleges and universities, emphasizes the importance of laboratory safety education and training in colleges and universities, analyzes the characteristics of experimental education and research work in detail, and establishes independent flexible, innovative, and comprehensive safety training work mode. Experimental personnel can choose corresponding safety education and training methods according to their own professional research conditions to improve safety skills and cultivate safety experiment literacy. At the same time, stricter management training requirements are put forward for managers. The safety management mechanism of discipline laboratories needs to be continuously explored and improved. Therefore, laboratory managers need to continue to learn and improve, and jointly maintain a safe and orderly scientific research environment in universities.

4. REFERENCES

- [1] Wang Siyu. Innovative Analysis and Research on College Students' Mental Health Education Model [J]. Chinese and Foreign Entrepreneurs, 2020(9): 23-23.
- [2] Ren Hai. Innovative analysis and research on the mental health education model of college students [J]. Science Consulting, 2020(10):1.DOI:CNKI:SUN:KXZC.0.2020-03-029.
- [3] Liang Shujie. Innovative Analysis and Research on the Mental Health Education Mode of College Students [J]. Chinese and Foreign Entrepreneurs, 2019(28):1.DOI:CNKI:SUN:ZWQY.0.2019-28-141.
- [4] Zhang Luqi. Innovative analysis and research on the mental health education model of college students [J]. Happy Life Guide, 2018(44): 1.
- [5] Yuan Xiaonan, Li Ruicheng. Research and Exploration on the Training Model of College Students' Laboratory Safety Awareness [J]. 2021.DOI: 10.3969/j.issn.1672-4305.2021.03.056.
- [6] Li Tielei. Research on the integration model of college students' innovative education and craftsman spirit training [J]. Heilongjiang Science, 2021, 12(19): 2.
- [7] Shi Ling, Jessica Gisclair, Lu Zuhong. Using Grounded Theory to Analyze College Students' Internet Use Preferences and Suggestions [J]. Journal of Southeast University (Philosophy and Social Sciences Edition), 2009(03):118-121+130.DOI:10.3969/j.issn.1671-511X.2009.03.021.
- [8] Wei Taoyuan, You Chaoyang, Huo Kaifu. Enlightenment of Occupational Safety and Health Management in U.S. University Laboratories [J]. Experimental Technology and Management, 2012, 29(5):6.DOI:CNKI:SUN:SYJL.0.2012-05 -058.
- [9] Li Wenxuan, Wei Dandan, Kong Qingxia. Talking about the new model of university laboratory safety education and training [J]. Regional Governance, 2020.DOI: 10.3969/j.issn.2096-4595.2020.17.193.
- [10] Yu Meili, Kang Qili, Yang Fan. Investigation and Analysis of College Students' Innovation Ability and the Current Situation of Innovation Ability Education [J]. Modern Agricultural Research, 2018, 35(11):71-72.
- [11] Yu Meijun, Kang Qili, Yang Fan. Investigation and Analysis of College Students' Innovation Ability and the Current Situation of Innovation Ability Education [J]. Rural Practical Science and Technology Information, 2018, 000(011):69-70.
- [12] Qiao Libo, Han Zongyi, Luo Jufu, et al. New Exploration of Safety Education and Management in Psychology Laboratories in Colleges and Universities [J]. Experimental Science and Technology, 2022, 21:1-5. DOI: 10.12179/1672-4550.20220269.
- [13] Lin Xihu. Innovative research on the application of educational big data to college students' education management [J]. Journal of Shandong Agricultural Engineering College, 2019.
- [14] Hao Jingling. Research on Innovation of Construction Management Model of Construction Engineering [J]. Engineering and Management Science, 2023, 5(1):34-36.DOI:10.12238/ems.v5i1.5940.