

Psychological Curriculum Design of Mine Rescue Crew based on BOPPPS

Hongyu Ran

Faculty of Physical Education, China University of Mining and Technology (Beijing), Beijing
100083, China

398124033@qq.com

Abstract. In order to scientifically formulate psychological training courses for mine emergency rescue teams, and improve the psychological quality of mine emergency rescue team members, we adopt literature methods, expert interviews, field trips and other research methods, and take the psychological training courses for mine rescue teams as the research object. Analyze the existing problems and course limitations of the psychological training of the mine emergency rescue team, apply the BOPPPS teaching mode to the psychological curriculum design of the mine emergency rescue team, and design the corresponding design according to the six major links of the BOPPPS teaching mode in combination with the work characteristics of the mine rescue team. In teaching activities, a set of scientific psychological training curriculum system is proposed to provide a reference for more scientific and reasonable psychological training of mine emergency rescue teams.

Keywords: BOPPPS; Teaching Mode; Emergency Rescue; Psychological Quality; Course.

1. Introduction

Mine rescue is the earliest emergency treatment in China, and its main purpose is to ensure the life safety of underground workers. When the underground disaster occurs, the rescue team in the rescue work of the psychological bear a large load. When rescue workers are in a dangerous situation, they will have complex psychological activities. If rescue workers are shaken and lucky, it will not be conducive to the development of rescue work. Such psychological appearance may lead to the failure of rescue work, resulting in casualties [1]. At present, there is little research on the psychological quality of mine rescue workers. According to the research of firefighters and armed police, they use traditional intelligence tests and personality tests. The main purpose of psychological assessment is to identify the mental health status of soldiers, rather than predict future work results [2].

Yao Sanqiao analyzed the psychological stress of mine rescue workers and its influencing factors, and found that the detection rate of depression symptoms of rescue workers was higher than that of the general population. Factors such as different types of work, age, education level, rescue time, rescue times, training and combat readiness duty time had a certain impact on the psychological stress of mine emergency rescue workers [3]. Ron Gantt found that panic behavior occurs only when people feel imminent threat, close exit routes, and lack of help or resources. In disaster and emergency situations, emergency responders must design emergency plans [4]. As psychological factors play an important role, it is more and more urgent to carry out psychological quality training for mine rescue workers.

BOPPPS teaching mode is ISW teacher training system, widely used in Canada the theoretical basis of [5], the model emphasizes student-centered teaching concept, modular decomposition process of classroom teaching, offers classroom teaching goals to achieve a clear thinking and effective safeguard, has now become the Canadian higher education teacher training and classroom teaching standards Mode [6]. Yajie's micro-teaching based on BOPPPS model found that this teaching model can stimulate students' learning interest and enthusiasm, improve students' thinking ability, help teachers generate innovative teaching ideas and improve teaching quality [7].

2. BOPPPS Mode

The BOPPPS teaching model was established in 1976 by Douglas Kerr's team at the University of Vancouver. It is a recognized teaching model in the skill training of teachers in colleges and universities in North America [8] and has been implemented in China in recent years. BOPPPS teaching mode divides the teaching content into 6 parts: Bridge-in, which introduces the teaching content of this class through cases, news and other forms to attract students' attention and stimulate their interest in learning; Objective, clear learning objectives and expected learning effects; Pre-assessment is used to assess students' learning status through preliminary investigation and pre-class quiz, so as to understand their knowledge reserve and ability. Participatory learning is the main part of classroom teaching. Teachers need to adopt a variety of organizational forms and learning strategies to make students widely and deeply participate in teaching activities, and take the initiative to learn and master relevant knowledge. Post-assessment, using a variety of measurement forms to understand the learning effect of students, feedback whether to achieve learning goals; Summary: By reviewing and reviewing knowledge points, the class content is summarized to help students build a solid knowledge framework [9]. Each part follows the process of transition and integration, emphasizes effective classroom design mode, highlights teaching interaction and feedback, and stimulates students' interest and initiative in learning [10].

3. The Necessity of Psychological Quality Training Course

Psychological quality education is an important part of the ideological and political work of various professions, and also one of the important contents of the talent cultivation system, which is reflected in the training of professional skills talents with healthy body and mind and positive psychological quality. Foster rescue workers' positive and healthy mentality, promote the coordinated development of rescue workers' mental health quality and physical quality. Mental health education is the premise and basis for the smooth development of ideological and political education. In order to make rescue team members have good psychological quality in the rescue process, they should be taught in accordance with their aptitude and adopt appropriate methods to train their psychological quality [11]. According to the author's investigation into the two national mine emergency rescue teams, it is found that neither the Kailuan National mine emergency rescue team nor the Furong National Mine emergency rescue Team has set up professional psychological quality training courses, and there are few researches on the psychological training of mine emergency rescue team, with few relevant research results.

The BOPPPS teaching model is mainly used for the skill training of teachers. In the training process, it mainly adopts the way of teaching practice to improve teachers' teaching skills and teaching effectiveness through intensive training. It emphasizes learning by doing and doing in learning, and highly integrates theory and practice. BOPPPS teaching model has attracted much attention since it was put forward and has been widely promoted and applied all over the world. This model emphasizes student-centered teaching and attaches great importance to the analysis and dismantling of teaching process in teaching methods.

Compared with traditional classroom teaching, BOPPPS mode pays more attention to the subjectivity of learning objectives, students' participatory learning, monitoring and feedback of learning results, and emphasizes the student-centered education concept [12].

Therefore, this study applies the BOPPPS teaching mode to the psychological quality course of mine emergency rescue team, and establishes a set of relatively scientific and comprehensive psychological training course.

4. Psychological Curriculum Design of Mine Emergency Rescue Team based on BOPPPS Model

Based on existing BOPPPS model, combined with the mine emergency rescue team training course of other research and practical experience, and considering the teaching feasibility and convenience, design a more adaptable to the mine emergency rescue team psychological course of talent training scheme, adopt the form of recorded and off-line networks teaching, with high efficiency to achieve good teaching effect. The course design mainly includes the following contents, and the general contents are shown in Table 1.

Table 1. Overview of psychological courses of mine emergency rescue team based on BOPPPS model

Survey of psychology course of mine Emergency Rescue Team based on BOPPPS model	
The model structure	Content
Bridge-in	Teachers introduced relevant rescue events and cases, Participants share their experiences and concerns.
Objective	Understand the relevant psychological theories, distinguish healthy and abnormal psychological states and psychological regulation methods, enhance self psychological resilience, etc.
Pre-assessment	Through the tool of <i>Rain Classroom</i> , the basic professional knowledge and application and practical skills are mainly investigated.
Participatory learning	It is divided into the teacher part and the student part, accounting for 20% and 80% respectively. The online recording and broadcasting are combined with the offline classroom, and the content is divided into specific theories and specific operation methods.
Post-assessment	Closed-book written test, those who fail to pass the test need to retake the test until they pass it. It mainly examines the rescue team's mastery of the basic theoretical knowledge and its application and practical skills, and scores them through their scientific and objective answers and clear expressions.
Summary	Summarize the difficulties and key points, and clarify the deficiencies and advantages of the course design again, so as to facilitate the optimization of the next round of course teaching.

4.1 Course Outline

According to the relevant requirements of psychology course of mine emergency rescue team based on BOPPPS mode, the basic teaching syllabus of this course is developed, as shown in Table 2.

Table 2. Teaching syllabus of Psychology Course of Mine Emergency Rescue Team

Course Title	Psychological Course for Mine Emergency Rescue Team
Course nature	The Psychological Course for Mine Emergency Rescue Team is a psychological quality training course designed to improve the comprehensive ability and quality of mine emergency rescue team members.
period	16 class hours
Applicable unit	Mine emergency rescue team
Teaching methods	Presentation, <i>Rain Class</i> , explanation, discussion, test paper
Textbooks and reference books	Peng Danling, 2019. "General Psychology" (5th edition), Beijing Normal University Press. Institute of Psychology, Chinese Academy of Sciences, 2008. "Manual of Psychological Self-Help for Officers and Soldiers After Disaster Rescue", China Social Publishing House. Yin Yiqin, 2016. "Safety Psychology", China Labor and Social Security Press. Gu Aiyun, 2010. "Analysis of Noncommissioned Officers' Psychological Control Cases", Haichao Publishing House.
Course Introduction	This course focuses on improving the psychological quality of the mine rescue team through teaching and practice. The psychological and physiological changes of the mine rescue team during the rescue process of the mine disaster have a multi-faceted impact on the rescue

	mission and future work, and targeted psychological training must be carried out; The course teaches how the mine rescue team conducts psychological training, creates a standardized, scientific, systematic and effective psychological training system, improves the overall training system of the mine rescue team, and improves the psychological quality of the mine rescue team.
Assessment method	Final exam
Practical teaching	Simulated rescue
Professional training ability	Have the basic knowledge and application ability of mine rescue psychology; Have team spirit; Cultivate the will to fight.
The curriculum develops students' abilities	Understand the basic theories of relevant psychology, distinguish between healthy and abnormal mental states; Master the methods of psychological control under different conditions; Skills to enhance self-psychological flexibility; Establish a sense of self-professional identity.
Teaching content and Class hours allocation	<p>This course focuses on how to improve the psychological quality of mine rescue team members through teaching and practice, as well as the impact of psychological changes on rescue tasks, as well as the ability of psychological adjustment and application in the process of mine rescue and rescue in the future. The focus of the course: psychological stress mechanism and the theory of psychological control methods under stress, psychological control ability training and methods of guiding people under stress. Difficulties of the course: identification and control of different mental states, basic theoretical knowledge of psychology. The teaching hours are 16 hours, including:</p> <p>1. Introduction (2 class hours) Teaching content: discussion of relevant rescue cases, syllabus and learning requirements of mine emergency rescue psychology. Teaching requirements: Cultivate students' interest in learning this course, and require students to have a clear understanding of the teaching content, teaching methods, and assessment methods of this course.</p> <p>2. Basic knowledge of psychology (2 hours) Teaching content: definition of psychology, safety psychology, meaning of mental process, relationship between psychology and behavior. Teaching requirements: Students are required to understand relevant basic theories and learn to distinguish between different psychological processes.</p> <p>3. Abnormal mental state that affects successful rescue (2 class hours) Teaching content: psychological fatigue, occupational stress and other abnormal psychological factors that affect successful rescue, fluke psychology, rebellious psychology, and other abnormal psychological factors that affect successful rescue. Teaching requirements: Students are required to understand and master relevant basic knowledge, and learn to recognize abnormal mental states that affect successful rescue.</p> <p>4. Psychological adjustment and control under stress (2 class hours) Teaching content: general psychological characteristics in the rescue process, pre-war psychological state analysis and response, psychological state analysis and response in the rescue process, post-war psychological analysis. Teaching requirements: Students are required to master the psychological characteristics and coping methods at different stages of the rescue process.</p> <p>5. Professional identity (2 class hours) Teaching content: the purpose, nature, mission, task and professional value of the mine rescue team. Teaching requirements: Require students to attach importance to the value of rescue teams and establish a sense of professional identity.</p> <p>6. Psychological control ability training (2 class hours) Teaching content: Hypnotic relaxation method, self-discipline training method, gradual relaxation method, breathing adjustment method, and handshake relaxation method psychological adjustment method. Teaching requirements: Students are required to self-diagnose and adjust existing psychological problems.</p>

	<p>7. Real scene simulation exercise (2 class hours) Teaching content: Set up simulated rescue scenarios, and self-regulate the mental state in the real scene. Teaching requirements: Students are required to correctly apply the knowledge they have learned in the rescue process.</p> <p>8. Review and answer questions (1 class hour) 9. Final assessment (1 class hour)</p>
Teaching method	<p>The teaching of this course is jointly implemented by a variety of methods such as classroom teaching, extracurricular reading, group discussion and report research, and network guidance. Emphasis on the psychological stress mechanism and the theory of psychological control methods under stress conditions, psychological control ability training and methods of guiding people under stress, etc., focusing on students' independent study and discussion, so that students can understand the relevant psychology of emergency rescue in mines Learn basic theories, distinguish between healthy and abnormal mental states, master the methods of psychological adjustment in different states, enhance self-psychological flexibility skills and establish self-professional identity, etc., and gradually train students to master and apply psychological knowledge related to emergency rescue in mines. Comprehensive quality.</p> <p>This course requires students to self-study relevant teaching content, conduct group discussions and research on the content learned in the classroom, and report in the classroom, cultivate students' self-study ability, improve teaching efficiency, and consolidate the knowledge learned; set relevant scenarios for exercises and training The students' teamwork ability and theoretical application ability; a final exam is set to comprehensively assess the students' mastery of theoretical knowledge and practical application ability.</p>

5. Summary

With the continuous development of the related technology of auxiliary teaching, this paper aims at the concept of BOPPPS teaching mode, and constantly improves the main role of students in the classroom. Based on the six links of BOPPPS teaching mode, combined with the work characteristics of mine rescue team, the teaching process is divided into blocks and the corresponding specific teaching activities are designed. This model is helpful to improve classroom quality and teaching effect; It is helpful to promote teachers' professional quality and ability. The BOPPPS teaching model has been paid more and more attention and development in China. Meanwhile, the psychological curriculum of mine emergency rescue team is in urgent need. This study has high practical value and practical significance.

References

- [1] Yang San. Thoughts on the establishment of a rescue training system for mine rescue teams [J]. *Economist*, 2020 (07): 266+268.
- [2] Lu Yao, Wang Ruzhu, Liu Yuan, et al. Investigation on the psychological status of mine rescue team members [J]. *Chinese Journal of Preventive Medicine*, 2014, 48 (4): 286-290.
- [3] Sanqiao Yao, Yao Lu, Ruzhu Wang, etc. Analysis on psychological stress and its affecting factors to mine rescue personnel[C]. 2nd International Conference and Exhibition on Occupational Health & Safety, 2013.
- [4] Gantt P, Gantt R. Disaster Psychology: Dispelling the Myths of Panic[J]. *Professional Safety*, 2012, 57 (8): 42-49.
- [5] Pat Pattison, Russell Day. *Instruction Skills Workshop (ISW) Handbok for Participants*[M]. Vancouver, The Instruction Skills Workshop International Advisory Committee, 2006.
- [6] Cao Danping, Yin Xingyao. Canadian BOPPPS teaching model and its enlightenment to higher education reform [J]. *Laboratory Research and Exploration*, 2016, 35(02): 196-200+249.
- [7] Yajie, Yang, Jie, et al. The Effect of Microteaching Combined with the BOPPPS Model on Dental Materials Education for Predoctoral Dental Students.[J]. *Journal of Dental Education*, 2019.
- [8] Luo Zi, Fu Shaojing, Li Tun. Viewing classroom teaching reform from the BOPPPS teaching model [J]. *Computer Education*, 2015, 234(6): 20-22.

- [9] Nong Jiancheng. The enlightenment of BOPPPS teaching mode to the classroom teaching reform of higher vocational education[J]. Guangxi Education, 2018, (35): 54-56.
- [10] Jiang Xupin, Teng Miao. The application of BOPPPS teaching model in burn assessment network teaching [J/OL]. Chongqing Medicine: 1-6 [2021-02-19]. <http://kns.cnki.net/kcms/detail/50.1097.R.20210218.1049.004.html>.
- [11] Huang Jie. Reconstruction of Higher Vocational Mental Health Education Curriculum Design Based on the Concept of "Curriculum Ideology and Politics"[J]. Chinese Journal of Multimedia and Network Teaching (Mid-term), 2021(01): 89-91+94.
- [12] Kang Zhao. Comprehensive experimental teaching design of cognitive psychology based on BOPPPS teaching model [J]. Journal of Higher Education, 2020(20): 101-103+106.