

Analysis on the Causes and Countermeasures of Mechanical and Electrical Transportation Accidents in Coal Mines

Xinglin Su

Bijie Zhongcheng Energy Co., Ltd., Guizhou Bijie 551700

Abstract: *There are many types of mechanical and electrical equipment involved in current coal mine mechanical and electrical transportation, and many workers are not familiar with the operation of mechanical and electrical equipment. Improper operation often leads to operational failures of coal mine mechanical and electrical equipment. The important reason for this phenomenon is that the transportation management of underground mechanical and electrical equipment is not in place, and there may also be incorrect and unreasonable management methods. This situation will directly hinder coal mining work and exacerbate the threat to the safety of workers' lives. Therefore, coal mining enterprises must develop good management measures for underground mechanical and electrical equipment based on the current operating status of the equipment and the company's own development status, reduce operational accidents of mechanical and electrical equipment, and improve normal and stable production in the coal mine.*

Keywords: Mechanical and electrical transportation; Coal mines; Accidents; Equipment; measure.

1. INTRODUCTION

Abstract: In recent years, China's economy and technology have continuously developed, improving people's economic level. Coal resources, as an important resource in China's economic development, have also received widespread attention for their mining. Coal mine mechanical and electrical transportation work is an important link in coal mine production, and coal mines are labor-intensive industries. The professional ability of workers and the level of mechanical and electrical equipment operation are both related to the safety production of coal mines. Due to the frequent occurrence of various influencing factors in the transportation process of coal mine mechanical and electrical equipment, it is extremely easy to cause coal mine mechanical and electrical transportation accidents. If the coal mine mechanical and electrical transportation accidents cannot be solved in a timely and effective manner, it will hinder the safety production of coal mines. Based on this, this article analyzes the causes of mechanical and electrical transportation accidents in coal mines, and proposes corresponding solutions for reference only.

2. ANALYSIS OF THE CAUSES OF MECHANICAL AND ELECTRICAL TRANSPORTATION ACCIDENTS IN UNDERGROUND COAL MINES

In the 3-6 years old children's learning and development guide, children from 3 to 4 years old start like listening to music or watch dance, drama, such as performance, at the age of 4 to 5 to be able to concentrate to watch their favorite theatrical performances, or works of art and art appreciation expression often used 5 to 6 years of age, action, language and other ways to express their understanding, willing to share with others. It is clearly pointed out in the education suggestions: take children to watch or participate in traditional folk art and local folk culture activities. The puppetry art in Zi Zhong ranges from story-telling reflected in script construction, puppet role and scene art design and production, to drama performance and music collaboration. It can almost include all the pre-school aesthetic education activities of listening, watching, speaking, imitating and participating. Therefore, it is reasonable and advantageous to integrate Zi Zhong puppet art into preschool aesthetic education activities.

Moreover, in the Kindergarten education guidance outline (trial)" mentioned "in the implementation of quality education according to local conditions, for the development of children's life lay a good foundation. As a national intangible cultural heritage, the artistic value of Zi Zhong puppets is self-evident. The integrated education with preschool aesthetic education not only provides excellent teaching resources for aesthetic education courses, but also spreads traditional culture, builds cultural confidence from childhood, and promotes the prosperity and development of local culture.

2.1 Inadequate implementation of safety management system

With the rapid development of coal mining enterprises, there are serious loopholes in the internal safety management system, which has led to the occurrence of mechanical and electrical transportation accidents in coal mines. Moreover, after accidents occur, many enterprise systems are unable to effectively implement accident responsibilities, and there may be unclear division of safety responsibilities. At this time, staff may shift responsibility. If these problems cannot be solved in a timely and effective manner, it will have a serious impact on the underground mechanical and electrical transportation of coal mines, thereby threatening the development of coal mining enterprises. In addition, although some enterprises have strengthened their emphasis on safety management systems, the implementation of safety management systems is not yet perfect in the actual process. This often leads to poor safety production and management in coal mining enterprises, resulting in many systems being unable to be implemented, and the reward and punishment system cannot play its true role and value. The poor effectiveness of coal mine mechanical and electrical safety transportation management has caused difficulties for coal mine mechanical and electrical transportation management.

2.2 Problems of operators themselves

The management of underground mechanical and electrical transportation in coal mines requires staff to have rich professional knowledge and good comprehensive qualities. However, according to current staff investigations, most staff members have low safety awareness and often take chances during the work process, failing to implement safety systems and measures in place. This phenomenon seriously threatens the life safety of underground mechanical and electrical transportation management personnel, and has also caused serious negative impacts on enterprises. In addition, job transfers are very frequent in coal mining enterprises, and this is also a common phenomenon in the production of coal mining enterprises. If it cannot be effectively reduced, mistakes and safety hazards during job transfers at low positions can also easily lead to safety accidents in the transportation of underground mechanical and electrical equipment in coal mines due to insufficient comprehensive quality and professional level of workers. That is to say, while coal mining enterprises develop themselves, they also need to consider the future of their staff.

2.3 Mechanical equipment and technical issues

The requirements for mechanical and electrical equipment in the underground transportation management of coal mines are very high, requiring coal mining enterprises to have appropriate mechanical equipment and sufficient funds as support. However, in the actual management process of coal mine mechanical and electrical equipment, some enterprises often fail to follow the corresponding regulations and requirements when selecting mechanical and electrical equipment in order to reduce operating costs and increase economic benefits. Moreover, in the later stage of equipment work, maintenance and upkeep are not timely, resulting in safety hazards during the operation of coal mine mechanical and electrical equipment.

2.4. Integration of Script and Aesthetic Education

The whole information process of the script story is the central function of human thinking and the story is also the aesthetic embodiment of habitual knowledge in the field of narratology. Preschool children are particularly interested in stories. When they are three or four years old, they can clearly tell short stories. Cartoons and musicals that children enjoy are all artistic creations based on script stories. The scripts of puppet art in China are diversified, including historical themes, social life themes, myths and legends, and fairy tales. The story is positive and educational.

2.5. Integration of Production Technology and Aesthetic Education Experience

From the late Qing Dynasty to the present, Zi Zhong puppets have experienced three stages of development, from small puppets to large puppets and then to medium puppets with stick head. So far, it has formed a set of very mature techniques. Shaping, mold turning, pasting, shade drying, mold taking, polishing a series of handicrafts of strong skills. These production technology can be integrated into aesthetic education practice education, lead children to visit the production process, and select a safe and simple part of the process for practical production experience. Experience class activities can drive children's enthusiasm, have fun and sense of achievement. From the previous appreciation to active participation, so that the intangible cultural heritage has a new way of dissemination and publicity.

2.6. Interactive Integration of Games

Preschool aesthetic education is an important part of aesthetic education, but it can not be equated with mass aesthetic education or adult aesthetic education. Preschool aesthetic education is the initial stage of individual acceptance of aesthetic knowledge. Because of the particularity of children's age and physical development stage, preschool aesthetic education should not be mechanically copied, but should be guided as the starting point, with lively and interesting means to trigger children's cognition of beauty. Perception of beauty and acceptance of beauty. When it comes to vividness and fun, we have to say "games". Game is one of the main activities in early childhood education, we often say that edutainment is to integrate knowledge and skills into the game. Zi Zhong puppet art itself has a game function, used in preschool aesthetic education is highly maneuverable. Children participate in the situation by acting the role in the puppet show, imitating the performance of the puppet show, and experiencing the aesthetics of drama.

3. STRATEGIES FOR IMPROVING THE MANAGEMENT LEVEL OF MECHANICAL AND ELECTRICAL TRANSPORTATION IN COAL MINES

Now, with the changing needs of the audience, there are also some fairy tale characters. The role image focuses on dynamic appeal and realistic modeling. The theme of the plays is very rich, in addition to the traditional plays such as: midnight chicken crowing, small eight road, outwitting tiger Mountain, etc., there are also traditional change plays, modern plays. His themes range from folk tales to myths and legends to children's stories and social life. Stage construction does not need too much modification, the performers perform behind the curtain and then combine with opera music and reasonable sound effects to create a vivid program. So far, Zi Zhong Puppet Theater has produced more than 500 puppets of different types and styles, performing in various parts of the world and winning numerous awards.

3.1 Improving the Professional Quality of Operators

The comprehensive quality and professional skills of coal mine underground mechanical and electrical transportation management personnel are directly related to the level of coal mine underground mechanical and electrical transportation management. Therefore, in order to effectively improve the level of mechanical and electrical transportation management, it is necessary to strengthen the professional quality and comprehensive ability of the staff. Firstly, establish a competitive mechanism within the enterprise, and divide the salary levels based on the work ability and level of the staff. Different work abilities should be given the same work treatment, effectively enhancing the work enthusiasm of the staff. Secondly, enterprises should strengthen the training of professional skills for their staff, effectively achieving the mastery of professional skills and basic knowledge among internal staff. Thirdly, we need to increase the effective management of relevant personnel, allowing them to actively delve into practical work and accumulate work experience, and effectively improve the supervision of underground mechanical and electrical transportation in coal mines, achieving an improvement in management level.

3.2 Strengthen the management of equipment and technology

In the operation of electromechanical equipment in coal mines, coal mining enterprises should not only prepare sufficient electromechanical equipment for normal coal mining, but also prepare corresponding standby electromechanical equipment. For example, take the local ventilation fan in a coal mine as an example. During the normal excavation process, not only one local ventilation fan is required to operate for ventilation, but another local ventilation fan is also required to be in a hot standby state at all times. Local ventilation fans are important equipment in coal mine production, which is related to the ventilation and safety of the coal mine underground. Normally, the service life of local ventilation equipment is five twenty-three.

After the service life expires, no matter whether the local ventilator can operate normally or not, the local ventilator needs to be replaced to effectively ensure the life safety of underground workers. In addition, in order to effectively enhance the normal operation of coal mine mechanical and electrical equipment, it is necessary to establish a comprehensive management system for the operation of coal mine mechanical and electrical equipment. According to the relevant regulations of the enterprise and the operation management system of coal mine mechanical and electrical equipment, it is necessary to strengthen the safety management of coal mine mechanical and electrical equipment, effectively achieve the good operation of coal mine mechanical and electrical equipment, and pay more attention to the maintenance and repair of large mechanical and electrical equipment, and establish corresponding maintenance records, Lay the foundation for later maintenance and repair.

3.3 Comprehensive improvement of safety production awareness

To achieve the prevention of mechanical and electrical transportation accidents in coal mines, coal mining enterprises must start with strengthening safety production knowledge and pay more attention to coal mine safety production. Firstly, hang the safety first production slogan in a prominent position in coal mine production, and make safety management the top priority in coal mine production. Establish a sound safety first management concept within the enterprise, and regularly provide safety production awareness training for relevant personnel involved in underground transportation operations in coal mines. Accurately assign safety responsibility awareness to individuals, effectively improving safety in coal mine production. Secondly, enterprises should actively strengthen the funding for safety production management, utilize relevant management knowledge to effectively realize the value of safety production in coal mines, require all staff to actively cooperate with the relevant systems formulated by the enterprise, improve the effectiveness of safety management, and effectively achieve the stable development of coal mining enterprises.

4. IMPROVE THE COVERAGE OF TRANSPORTATION SYSTEM MONITORING

There are many reasons for accidents in the underground transportation system of coal mines, among which the main reason is the inadequate monitoring in the mechanical and electrical transportation of coal mines. Therefore, it is necessary to strengthen the optimization of monitoring in the transportation of mechanical and electrical equipment in coal mines and achieve a comprehensive increase in monitoring coverage. In the operation of coal mine mechanical and electrical equipment, the chain control and monitoring system for coal mine transportation achieves good control of the operation of coal mine mechanical and electrical equipment, and according to corresponding requirements, the installation of braking protection devices such as current, voltage, and anti deviation during coal mine mechanical and electrical equipment transportation can be achieved. In addition, in the process of coal mine mechanical and electrical production, by strengthening the monitoring of the transportation process, the dust prevention and cooling effect in coal mine production can be achieved. Large mechanical and electrical transportation equipment can be well monitored, effectively reducing safety accidents during the operation of mechanical and electrical equipment. The puppet art of Zi Zhong, a national intangible cultural heritage, and the integration of preschool aesthetic education to enhance the art and aesthetics of preschool aesthetic education activities, the effect of aesthetic education is good and too stiff to watch the explanation and introduction. The introduction of intangible cultural heritage into preschool aesthetic education makes the courses of aesthetic education diversified. At the same time, it cultivates children's hands-on ability, participation ability and creativity. While children receive aesthetic education, they have a good understanding of Chinese folk culture, which is conducive to the benign dissemination and protection of intangible cultural heritage and the establishment of children's cultural confidence from below.

5. CONCLUSION

In summary, the safe and stable operation of coal mine mechanical and electrical equipment is the core of work management in coal mining enterprises, which not only affects the future development status of the enterprise, but also affects the life safety of underground workers. Therefore, coal mining enterprises must attach great importance to the management of mechanical and electrical equipment for underground transportation in coal mines, adhering to the principle of safety first, and actively improving the professional quality and comprehensive ability of staff. Once a coal mine mechanical and electrical transportation accident occurs, it is necessary to identify the responsible person as soon as possible and strengthen the analysis of the cause of the accident. Effective measures should be taken to reduce the impact of coal mine mechanical and electrical transportation accidents and ensure the improvement of coal mine mechanical and electrical transportation management level.

REFERENCES

- [1] Zhao Lizhi. Analysis of Problems and Countermeasures in the Management of Mechanical and Electrical Transportation in Coal Mines [J]. Energy and Energy Conservation, 2016 (08): 72-73
- [2] Li Fei. Analysis of the Causes and Countermeasures of Underground Mechanical and Electrical Transportation Accidents in Coal Mines [J]. FT East Coal Technology, 2016 (02): 93-94+96
- [3] Li Jinzhu. Analysis of Problems and Countermeasures in the Management of Mechanical and Electrical Transportation in Coal Mines [J]. Enterprise Technology Development, 2015,34 (27): 167+169

- [4] Zhang Su Study on the causes of unsafe actions in coal mine transportation accidents [D]. China University of Mining and Technology (Beijing), 2015
- [5] Xue Hongjun. Analysis of Problems and Countermeasures for Underground Mechanical and Electrical Transportation Management in Coal Mines [J]. Management and Technology of Small and Medium Enterprises (Last Ten Days), 2014 (01): 179-180
- [6] Ministry of Education of the People's Republic of China. Guide to Learning and Development for 3- 6 years old Children [EB/OL]. [2021-10-09]. http://www.moe.gov.cn/srcsite/A06/s3327/201210/t20121009_143254.html.
- [7] Department of Basic Education, Ministry of Education. Kindergarten Education Guidance outline [M]. Nanjing: Jiangsu Phoenix Education Press. 2017.12.
- [8] Hong Wei. Aesthetic Foundation and Children's Aesthetic Education [M]. Shanghai: Fudan University Press. 2017.10.
- [9] Huang Danhong. Integrating local culture into games to promote the development of small-class children's aesthetic education [J]. Journal of fujian education college,2018,19(05):33-34.
- [10] Zhao Man. The Aesthetic Characteristics of Folk Culture in Southern Hunan and the Value of children's aesthetic education [J]. Knowledge Tribune, 2021 (14) : 95-96. The DOI: 10.14161 / j.carol carroll nki QZDK. 2021.14.048.
- [11] Qi Xu, PI Yanqi. Medium head rod puppets in sichuan information processing technology research [J]. Journal of adornment, 2016 (8) : 95-97. The DOI: 10.16272 / j.carol carroll nki cn11-1392 / j. 2016.08.022.