

Research on the Management Strategy of Expressway Traffic Safety Facilities Engineering

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Abstract: *Improving the advanced highway transportation system fully demonstrates China's strong strength. The purpose of this article is to comprehensively discuss the basic types and functions of highways, and to provide a detailed discussion on them, in order to provide a meager contribution to the reasonable planning and construction of highways in China that meet the national conditions.*

Keywords: Expressway; Transportation engineering; Safety facilities; construction management.

1. INTRODUCTION

Road safety facility engineering generally includes safety facilities, service facilities, and management facilities. The quality of its construction is directly related to the economic benefits of highways, and is also a key facility to ensure road safety and safety. Therefore, there is a direct connection between the construction and safe operation of road traffic safety facilities projects. In the process of realizing the development of modern informatization, higher vocational colleges should focus on promoting the innovation of teaching mode, based on the actual development of school sports, pay attention to the improvement and application of theoretical knowledge, re integrate sports informatization teaching resources, make full use of online network resources, promote the effective integration and utilization of sports informatization teaching resources, and create a multi-directional and all-round teaching resource gathering area, Truly realize that one platform can meet the teaching resources, teaching means and methods used in physical education teaching, cloud education platform app, various online operation official account, etc., and realize a diversified education resource system.

During the new crown period, physical education courses in Vocational Colleges adopted the online modern information-based teaching mode, using various forms of online guidance to effectively ensure the teaching progress; In the post epidemic era, aiming at the problems of single PE teaching informatization mode, low teaching effect and teaching quality in vocational colleges, we should build a multi informatization teaching mode resource platform, reconstruct its teaching process, expand multi-channel teaching resources, guide students to innovate independently, learn lessons from online teaching mode, improve its teaching informatization teaching level and improve the informatization construction mode.

2. OVERVIEW OF HIGHWAY TRAFFIC SAFETY FACILITIES

Highway traffic safety facilities refer to the anti-collision guardrails, traffic signs, road markings, anti glare facilities, isolation facilities, sight guidance signs, etc. set up on the road, which are important components of highways. The traffic safety facilities of highways are of great significance for ensuring highway safety, reducing the severity of accidents, beautifying the road surface, smoothing traffic flow, and improving driving comfort. They are one of the important symbols of highway modernization and intelligence. Road traffic safety facilities are an important component of highway construction, and their primary goal is to ensure the safety of people's travel and ensure the normal operation of the highway. Highway traffic safety facilities mainly include anti-collision guardrail, central Median strip, anti dazzle facilities, traffic signs, road signs, etc. Strengthening the maintenance and upkeep of highway traffic safety facilities is beneficial for exerting their protective functions, reducing accidents, beautifying the environment, improving the comfort of car driving, and developing towards intelligence and modernization.

2.1 The physical education classroom model has changed, which requires the improvement of the ability to master information-based teaching

The post epidemic era has made great changes in the teaching mode of higher vocational physical education, and put forward high-level requirements for the informatization teaching ability of physical education teachers. At present, the epidemic situation at home and abroad is in a long-term fluctuation and local prevention and control stage. The dual line hybrid physical education teaching mode has become the mainstream of physical education teaching mode. With the emergence and gradual application of University MOOC, flipped classroom, SPOC, keep, school online and other software and official account, the dual line hybrid physical education teaching should adapt to the trend of information-based teaching. At the school management level, we should vigorously promote higher vocational colleges and cross regional network research, and actively promote the popularization and application of online and offline hybrid teaching mode. Teachers are the key to the use of information-based teaching, which is to guide and promote the use of information technology by PE teachers in vocational colleges. It is of great value to guide their information-based teaching and training, and is conducive to promoting the information construction of vocational colleges to "information 2.0 stage".

2.2 Changes in theoretical teaching contents, focusing on strengthening life and health education

The theoretical teaching of physical education in higher vocational colleges not only covers the theoretical knowledge of skills and special theoretical knowledge, but also includes the knowledge system of life and health education. Natural disasters, public health emergencies, social and national security problems have always existed, which have a specific crisis state for human survival. Therefore, higher vocational physical education teaching should take the initiative to undertake life education and health education, establish the teaching concept of attaching importance to and reverence for survival ability, integrate life and health education into daily physical education theory teaching, strengthen the cultivation of students' health knowledge and survival awareness, improve their ability to deal with emergencies, and cultivate their ability to quickly and safely deal with public health events and accidents is one of the contents of sports information teaching.

2.3 Changes in the teaching contents of skill courses put forward higher requirements for the creation and compilation of basic movements of Physical Education Teachers

Due to the change of teaching environment, the teaching skills of physical education teachers in higher vocational colleges are limited to a certain extent, and some teaching contents such as environment and venue cannot be carried out. In the post epidemic era, the physical education teaching in the semester was conducted by combining online teaching and offline teaching. In the early stage, the online teaching content was replaced by simplified aerobics, basic physical fitness exercise (including exercise time, exercise volume, exercise intensity, exercise methods, with the help of simple sports equipment, post exercise relaxation exercise), martial arts, physical fitness exercise, etc. The sports that physical education teachers are good at cannot be displayed. Therefore, further requirements are put forward for the creation ability of physical education teachers' basic physical fitness movements; In the later stage of offline teaching, physical education teachers should first fully understand the basic knowledge and physical quality of students through online physical education teaching, and then use the modern information-based teaching mode for teaching.

2.4 Strengthen the information-based teaching mode of physical education and carry out the organic integration of Two-line Hybrid under the support of digital technology

It is a new test for PE teachers in Vocational Colleges for their digital literacy during the epidemic. PE teachers should accurately identify the teaching contents that are suitable for students in vocational colleges to accept and master, and carry out double line hybrid teaching. The action plan for improving the digital literacy and skills of the whole people points out that it is necessary to improve the digital skills vocational education, promote professional upgrading and digital transformation, optimize and improve the curriculum, and build a high-level digital skills vocational education. At present, the digital literacy of some PE teachers in vocational colleges is at a low level as a whole. Therefore, PE teachers should actively carry out new forms of mixed learning, cooperative exploration and other learning methods by using digital information technology, and blend the real world, the digital world and the virtual world to form a normal state of physical education teaching. Apply information technology throughout the whole physical education classroom (pre Class Autonomous Learning and preview, teaching methods, in class learning, understanding and mastering, assessment, recognition of learning results, evaluation of diversified double line mixed mode, etc.), promote the digital information mode of physical education teaching in Vocational Colleges and form a teaching system to reconstruct the structure of physical education teaching.

3. PROBLEMS IN HIGHWAY TRAFFIC SAFETY FACILITIES

3.1 Unscientific planning

In short, when formulating the overall plan for highway traffic safety equipment, it is necessary to take into account the overall situation and emphasize the key points, that is, to formulate specific plans based on different natural environments, geology, climate, cultural environment, and other specific conditions. Do not reduce construction investment due to cost savings, nor blindly choose the best. However, there are some problems in the construction of road transportation safety facilities in mountainous areas, If there is a lack of a comprehensive planning system, there is a lack of scientific and reasonable planning and design in planning safety assessment and road network construction, which has a negative impact on the design of road safety facilities.

3.2 Design deficiencies

Overall, the safety equipment of highways should take into account the safety of highways. The unique nature of roads, combined with local geographical, cultural, climatic, environmental and other factors, requires reasonable planning. However, China has not yet fully developed technology and lacks corresponding software. When carrying out detailed design, details cannot be fully taken into account. Some governments and construction units, out of their pursuit of appearance, often focus on appearance and neglect safety. Therefore, when carrying out detailed design, It will be affected by many human factors [2].

3.3 Inadequate maintenance management

At present, the management of highways in China mostly focuses on the maintenance of road surfaces and does not attach importance to the maintenance of traffic safety equipment. The proportion of evaluation indicators is relatively low. In the evaluation system, due to the lack of a comprehensive evaluation mechanism, the supervision of traffic safety facility management is insufficient, leading to many traffic safety equipment not being detected in a timely manner after problems occur, laying hidden dangers for traffic accidents.

4. KEY POINTS FOR CONSTRUCTION OF TRAFFIC SAFETY FACILITIES ENGINEERING

The construction quality of highway traffic safety facilities projects directly affects the later operation of highways, affecting the driving safety of highways, especially on highways where excessive speed leads to traffic accidents. This article analyzes the key points of constructing highway traffic safety facilities projects. Traditional teaching in higher vocational colleges can ensure the students' exercise volume and intensity, but the teaching methods and means are relatively simple, and the students' physical fitness levels are different. Physical education teachers use the barrel theory to meet the students' general physical fitness as the standard for safe teaching. Differentiated teaching and hierarchical teaching are rarely used in Vocational Colleges' physical education informatization teaching; Secondly, sports information teaching has been used to some extent, but most of them can't really play a good teaching effect. The implementation of sports online courses in the post epidemic era has not been smooth sailing. Under the information-based teaching mode, teachers can't fully grasp the actual learning effect of students. As a result, students become spectators of sports classes, while teachers return to the complete ruler of traditional teaching classes. The effect is not ideal. At present, there are still many problems between physical education teaching in the "Internet + information age" and offline teaching after students' return to campus, such as insufficient connection of teaching content, unsatisfactory learning effect of students, low utilization rate of teachers for information-based teaching, no connection between online teaching data and offline teaching, and no update of evaluation mode, Some of the physical education teachers voluntarily accept the current information-based teaching and the use of many teaching software. The above will lead to the formation and development of the sports information-based teaching mode.

4.1 Traffic lights

Traffic lights are well-known traffic safety devices, and the slogan "stop at red light and go at green light" is even more deeply ingrained in people's hearts. Essentially, there are various types of signal lights with clear functions. In order to meet complex traffic conditions, various signal lights have been specially designed in China to ensure smooth daily driving. At present, the widely used traffic signal light in China is traffic signal light; Non motorized

vehicle indicator lights for guiding pedestrians on highways; Pedestrian crossing signal lights to ensure smooth passage of pedestrians through pedestrian crossings; Intersection signal indicator lights set up at the intersection of roads and railways; Directional signal lights, flashing lights, etc. dedicated to highways [3].

4.2 Traffic markings

During the construction process, the temperature is lower than the quality of the markings, so the best construction period is spring and autumn. In order to minimize the adverse effects of temperature on the construction of the markings, staff should do corresponding work in the summer. In the morning, and the optimal working temperature is 6-33 °C. In work, in order to better carry out the construction of road markings, appropriate techniques should be selected based on local specific conditions to ensure the smooth progress of the project and achieve relevant quality. Special attention should be paid to important factors such as compressive strength, brightness, glass bead content, softening point, etc. of road sign paint, as these factors require long-term use in the use of highways. Therefore, The construction unit should strictly conduct inspections in accordance with relevant standards to ensure their effectiveness in daily work. Compared to other projects, the corresponding construction phase of highways requires more time and greater intensity. Therefore, in the work of related components of highways, there are dedicated personnel for regular maintenance. However, construction operations will have a direct impact on the traffic capacity of highways. Therefore, minimizing maintenance operations and reducing the frequency of maintenance operations is the best way to achieve the construction goals of highways.

4.3 Highway guardrails

In people's daily lives, guardrails can be seen everywhere, but they are the most basic and important on highways. According to the different types of road traffic grabs, guardrails are divided into three types: Firstly, guardrails are installed on highways. According to the situation of highways, guardrails are installed in the middle of ordinary highways and guardrails are installed on bridges. Set up protective railings to maintain vehicles passing through the area at a safe driving distance at all times. In emergency situations, protective railings installed on highways and bridge decks can slow down the impact of vehicles and reduce the probability of traffic accidents. At present, the commonly used waveform railing in China has the advantages of strong impact resistance, high plasticity, and wide applicability.

4.4 Road anti dizziness device

During high-speed driving, drivers are highly focused and may experience fatigue, making it difficult to respond correctly in emergency situations. At this point, effective intervention of external forces in road safety equipment can greatly reduce the occurrence of accidents. An anti glare system is installed on the road to avoid the glare caused by traffic lights during driving, and to protect drivers from driving at night. There are two types of anti glare devices used on domestic highways, one is for green areas, and the other is for manual anti glare devices. Iron wire mesh is mainly made of steel and adopts a special metal structure, which can greatly improve the driver's field of vision at night and enhance their night vision ability.

4.5 Isolation barrier

The purpose of setting up isolation barriers is to prevent pedestrians, livestock, non motorized vehicles, and other vehicles from entering the road through the highway, which can cause certain interference to the normal passage of the road. Vehicles on the highway have a relatively fast speed, and once encountering objects, it is easy for the driver to react less and cause a collision situation. Due to the faster speed and higher impact energy, it is easy to cause serious safety losses. In addition, partition barriers have been established to avoid illegal occupation of road land. In some highway construction, due to the regions may have conflicting opinions with local residents, which can lead to local people engaging in behaviors that have an impact on the construction process and the normal use of roads. In response to such problems, the solution often adopted by staff is not to directly interfere with local residents, but to communicate and communicate through the coordination of local governments. On the other hand, selecting conditional road sections for early construction to ensure the timely completion of the entire project [6].

5. DISCUSSION ON KEY POINTS OF CONSTRUCTION CONTROL FOR TRAFFIC SAFETY FACILITIES ENGINEERING

In the post epidemic era, vocational colleges' physical education teaching adopts the online and offline dual

teaching mode, and its dual line integrated teaching has become an inevitable trend for most vocational colleges. However, in the actual operation stage, some colleges have failed to unify the physical education information-based teaching mode, reasonably arrange the physical education school-based curriculum construction and select high-quality teaching resources suitable for their own physical education curriculum, Some professional physical education teachers in higher vocational colleges directly choose online physical education courses (micro courses and curtain courses) in combination with offline physical education teaching in undergraduate colleges. This teaching mode achieves general teaching effect and can't complete teaching tasks with high quality. For the first time, most of higher vocational physical education has adopted the "double line integration" mode for sports information teaching, and students' acceptance, participation and teaching effect have not yet achieved good results. In addition, different online teaching platforms and single offline teaching materials and information-based teaching means among higher vocational colleges have led to no innovation in teaching content, concise assignment, non standardization of students' online data management, and the effective completion of students' exercises.

5.1 Strengthen quality control of raw materials

Raw materials are an essential part of the construction process, and their structure and properties can have an irreversible impact on the overall quality of the construction. Raw materials are an important link in the construction process and technology. Therefore, before introducing raw materials for construction work, it is necessary to first have an understanding of the situation of the raw materials themselves, understand the position and function of raw materials in engineering planning, and based on their functions, To inspect the characteristics of materials, it is necessary to disclose the quality of raw materials to the public as much as possible before entering the construction site, construction party, supervision party, and material supply. During Roadworks, some materials required by traffic signs have characteristics such as durability and corrosion resistance. If the relevant materials have problems such as reflective performance, protruding road signs, compressive strength, anti radiation, etc., it will seriously affect the normal operation of the expressway. The construction unit should strictly control the above data, take samples to check whether they can operate for a long time and whether they will have an impact, Is it in a good environment for a long time.

5.2 A sound quality control and acceptance management system

In the implementation of the project, in order to enhance the sense of responsibility and safety awareness of the staff, relevant parties are required to clarify the relevant responsibilities of the project before the start of the project, and ensure that there are relevant responsible persons to ensure the quality and duration of the project. According to past research on highway accidents, more than 90% of road safety incidents are caused by people. Therefore, it is necessary to strengthen the management of the staff, Only then can the quality of construction be effectively improved. Enable employees to prioritize safety and responsibility awareness while working, and carefully consider the problems they face and potential issues that may arise. Employees are employees who have been working on the front line for many years. They can quickly identify safety risks and risks in construction projects, and establish a complete responsibility system that allows staff to promptly report problems to relevant departments when encountering them. At the same time, we will improve the quality management system and make every process step of employees' work clear, in order to improve their work efficiency and enable them to better play their role in the work. Special inspection was carried out for some important and Hard problem of consciousness problems in the project, which made the quality inspectors pay attention to details during quality inspection and improved the work quality of key processes. However, some projects are highly professional, and it is difficult for ordinary acceptance personnel to have a comprehensive understanding of every link in the project, As long as the staff compares the actual situation on site with the previous acceptance standards, they can directly draw inspection conclusions, thereby enhancing the usability of acceptance.

5.3 Strengthen team training management

To continuously improve employees' work efficiency, it is necessary to focus on their professionalism. Regular training and evaluation of technology will be conducted to integrate safety awareness, quality awareness, and responsibility awareness into employees' daily work, so as to cultivate these awareness and continuously improve their work level. The key point for the stable development of the information-based teaching mode of physical education teachers in vocational colleges is that the full-time physical education teachers' psychological acceptance and information-based teaching behavior are generated. The use of the integrated technology acceptance model (hereinafter referred to as "UTAUT model") can predict the information-based teaching behavior of Physical

Education Teachers, and then affect the teaching effect of the overall information-based teaching mode of physical education in schools and the periodicity of information-based teaching of physical education, It has certain reference value for putting forward corresponding strategies. The UTAUT model integrates the change process of tam-tam3. Its main application fields are education status investigation and local modeling. In the future, the research direction will focus on the application efficiency of digital information technology and the research and application of intervention measures.

5.4 Improve the quality awareness of all employees

Only by improving their thinking and concepts can the entire construction team pay more attention to ensuring quality and safety in all aspects of the project. So, promoting quality awareness is the key and the first step in implementation. To enhance a specific understanding, it is necessary to have a scientific method to guide it. We cannot be careless or provide in-depth explanations, and we need to grasp the appropriate time and methods for infiltration. Due to the relatively low level of education of most construction workers, lengthy and rigid promotion is avoided, and hierarchical teaching can be carried out according to levels and key points. Transforming complex principles into simple concepts. We should not focus on form or appearance, and inject our understanding of quality issues into the construction team of the entire road section. The UTAUT model can optimize a variety of theories to predict individuals' adoption and Application of new technologies. In combination with the physical education teachers in higher vocational colleges, their efforts expectations, performance expectations the promotion condition and social influence constitute the influencing factors of PE Teachers' psychological acceptance at the end of information-based teaching. The willingness of PE teachers in vocational colleges to use information technology in PE classroom is an important component of teachers' digital information technology literacy. Its restrictive factors are mainly information technology ability and attitude. The reform and innovation of digital information teaching are largely influenced by PE Teachers' willingness to use information technology.

6. MAINTAIN AND REPAIR TRAFFIC SAFETY FACILITIES

6.1 Crash barrier

- (1) If the paint on the railing is found to be damaged or peeling, it should be immediately updated.
- (2) Rusty fences should be replaced.
- (3) When the height of the railing changes significantly due to foundation settlement, appropriate adjustments should be made in a timely manner.
- (4) In case of damage to the railing caused by traffic accidents or natural reasons, repair or replacement should be carried out. The repaired railing should be coordinated with the line shape of the surrounding railing, and there should be no unevenness or undulation.
- (5) Guardrails should be connected in appropriate directions, screws should be completely fixed, and anti blocking blocks, brackets, and ends should be fixed in place without any obvious deformation or inclination [8].

6.2 Traffic signs

- (1) Make sure to clean it once every season to maintain its eye-catching and beautiful appearance.
- (2) When the reflective film on the label is severely damaged or damaged, it should be repaired or replaced in a timely manner.
- (3) When road signs are obstructed by roadside trees, billboards, etc., they must be cleaned immediately.
- (4) If the sign board is deformed, damaged, or the pillar is tilted or loose due to road traffic accidents or natural reasons, it should be repaired or replaced immediately, and replaced according to relevant design and construction regulations.

6.3 Traffic markings

- (1) When there are debris or impurities on the marking, making the identification unclear, it must be immediately cleaned or cleaned.
- (2) When there is significant damage to the marking line, it must be repainted or repaired.
- (3) If the road repair causes the missing or covered sign lines, they should be sprayed or repaired again. When supplementing, ensure that the markings have the same width and spacing as the original signs, And the shape of the lines is uniform, with flat edges [9].

6.4 Anti glare facilities

- (1) In daily maintenance, regular inspections should be conducted on anti glare equipment, and any missing items should be immediately repaired.
- (2) If the equipment is damaged due to traffic accidents, it must be repaired and replaced according to the original specifications. After repair, the alignment with the road surface should be ensured to be consistent, aesthetically pleasing, structurally reasonable, firmly installed, and evenly distributed.

6.5 Isolation barrier

- (1) Regular maintenance should be carried out and paint maintenance should be carried out if rust is found.
- (2) For those with serious pollution or advertisements, they should be cleaned and cleaned in a timely manner.
- (3) If it is damaged by someone or caused by a car accident, it should be repaired. When carrying out maintenance, special attention should be paid to the connection between the column, foundation, and partition to ensure sufficient strength, and to ensure that the surface of the mesh is smooth and free from significant concavities [10].

7. CONCLUSION

The construction of highway traffic safety facilities is of great significance for promoting the development of cities in China and promoting regional economic and social development. The current construction of road traffic safety facilities has not yet achieved good results due to various factors. However, with the unremitting work of all staff, it is believed that in the near future, the construction technology of this project will be greatly improved, providing better protection for the highway project and nearby people. In fact, the multi-subject resolution of digital disputes is practical and feasible, because most of the subjects of digital disputes have a high level of knowledge, coupled with digital disputes are not easy to identify, the cost of filing digital litigation costs, in addition to a few leading enterprises can carry out a war of attrition, most enterprises do not have such capital, so promote multi-subject participation in digital mediation. Both parties are active and voluntary. In particular, the court takes the lead, so that this mediation has the "quasi-judicial behavior" that other subjects mediation does not have[15]. For the identification of some cutting-edge issues in practice, the professionalism of the mediation subject can undoubtedly make the facts clearer and clearer, and the professional understanding of the judge on legal issues can better adapt to the optimal settlement of digital disputes. By absorbing practice subjects and professional organizations in the society, we can find legislative challenges brought by digital disputes in practice, and then better guide legislation.

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