

DESIGN ANALYSIS OF ROAD AND RAILWAY INTERCHANGE BASED ON BEHAVIORAL PSYCHOLOGY

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Background: Behavioral psychology is a school of psychology originated in the United States in the early 20th century. It was founded by American psychologist Watson. The application of human behavior psychology in urban road landscape design is to study the interaction between human behavior psychology and the spatial environment created by urban road landscape design. Urban road is the main traffic way and channel in the city and an important place for people to carry out activities. What kind of environment do people, vehicles and residents around the road need in the use of urban roads, and what should be the ideal road form, green planting and spatial form in line with people's psychology, The answers to these questions determine the future development direction of urban road landscape design. The sustained, rapid and healthy development of the national economy has increased the pressure on China's transportation, and the traffic density and speed of Railways and highways at all levels throughout the country have continued to grow. Therefore, in order to facilitate the passage of the people, more humanized reconstruction and expansion of roads and railways have been carried out in some areas to build a comprehensive and three-dimensional transportation mode, Make people's life faster and faster. The 12th Five year plan specifically describes how to build a comprehensive transportation system: improve the inter regional transportation network, build an inter city rapid network, give priority to the development of public transportation and improve the level of transportation services. In general, it is to coordinate the development of various transportation modes according to the principle of moderate advance, basically build the national express railway network and expressway network, and initially form a comprehensive transportation system with supporting network facilities, advanced and applicable technical equipment and safe and efficient transportation services. In the design of road and railway intersection, due to the complexity of railway construction and the particularity of transportation, special requirements are put forward for the design of interchange engineering. Several design methods are usually adopted, such as crossing the railway on the road and crossing the railway under the road. These design schemes are more difficult than ordinary ground construction, increase the complexity of design and construction, and are more strict with some technical requirements.

Objective: The design of road and railway intersection is more stringent than that of ordinary roads in terms of technical requirements. During interchange design, the influence of various factors shall be comprehensively considered, the advantages and disadvantages of various aspects shall be weighed, and a reasonable and feasible interchange scheme shall be selected. In recent years, China's infrastructure construction has made great progress, especially the construction of transportation, which has played an important role in prospering the economic and cultural exchanges in various regions of the country. However, due to the continuous expansion of the construction scale of roads and railways in China, there are intersections between railways and roads in some areas, which requires us to carry out special node design. This paper expounds the position, form and safety protection that should be paid attention to in road and railway design. Relevant experience can be used as a reference for relevant professionals.

Subjects and methods: At present, the design of interchange structure in China is mainly standardized and guided by technical standard for Highway Engineering (Ⅱ °C B01-2003) and code for design of highway route (JTJ 011-1994). Although these two kinds of documents are used as technical standards in design and construction, the contents related to intersection are very simple. For example, the contents of grade separation are limited to the setting principles and have no substantive guiding significance. The contents are too general and the details are not detailed. Some principles need to be tested by engineering practice. In view of these conditions, there is no detailed guidance document for the design of road and highway interchange, which can only be used as the basic basis for the design by the designers based on many years of design experience and field investigation on the construction site. Under normal circumstances, there are some conditions to be followed in the setting of highway and railway interchange. For example, when expressway or high-grade highway intersects with railway, grade separation must be set; In areas with heavy traffic and transportation, grade crossing must be set up when the adoption of grade crossing will endanger the safety of people driving on the road and railway traffic line due to the high density of railway traffic or the high speed of road vehicles and the influence of landform; When the flow of non motorized people in some parts of the city is large, grade separation must also be set up; The places where grade separation shall not be set as far as possible are the areas with many tracks in the railway station and complex layout of railway facilities in the turnout area. Generally speaking, the design of interchange scheme should be formulated according to the actual situation. The

first thing to do is to carry out the overall arrangement and layout before the interchange design. The core is the type selection. The type mainly includes several forms, such as crossing the railway on the road, crossing the railway under the Road, and combined crossing of crossing and crossing the railway on the road. It determines the general direction of interchange construction. Excellent design scheme can not only ensure the safety and smoothness of traffic, but also coordinate with the environment. It has become an important step in the construction of ecological civilization and a beautiful local scenery.

Results: 1. The road crosses the railway interchange. This method can be classified as up span type, that is, a overpass bridge is built on the main line, and the main line crosses the cross line. This type is applicable to the low and concave terrain of the cross line. The main line does not need to have too high upper span, which is the most favorable. The upper span type is adopted. Generally, the lower line should not be excavated too much. In order to make a specific explanation and explanation of this design method, take k1610 + 730 section of Jiaoliu line as an example. This section of railway is a reconstruction project from grade crossing to grade crossing. In this project, the span of the road in the cutting section of the railway section reaches one track, and the upper span bridge is perpendicular to the railway line. Because the railway line is straight and the slope of the cutting slope is not large, with a depth of 6 m, the simply supported hollow slab bridge with low price and convenient construction is adopted when erecting the upper span bridge. The geological condition of this section is good, the soil quality is good, and there is no bad geology such as swamp, silt and sand.

The selection of bridge span shall be comprehensively considered according to the built railway and local geological conditions. At the same time, attention shall be paid to the specific parts of its span: the reserved width of the railway, the center line spacing of multiple lines, the width of the built bridge pier, drainage facilities on both sides of the railway subgrade, etc. the specific situation shall also be analyzed. Because the top width of railway cutting is small and the subgrade slope is relatively stable, the overpass adopts the method of single hole crossing. During crossing, it shall be ensured that the distance between the front edge of the abutment and the center line of the railway line must be greater than 6.64 m, and the final bridge span is 16 M. This not only meets the basic requirements of railway construction clearance, but also makes the outer edge of the side wall of the drainage ditch 4.54 m away from the center line of the line, meets the design requirements, and ensures that the function of the line drainage facilities will not be affected by the bridge erection. After considering the requirements of bridge span, the requirements of clear height under the bridge shall also be guaranteed. The clear height under the bridge refers to the clear distance from the beam bottom to the top of the rail. The distance affects not only the design of the longitudinal slope of the road, but also the future railway reconstruction. Considering the 0.3% slope of the deck pavement and hollow slab, in order to meet the design requirements for the clear height under the bridge, the calculation point of the distance is set at the lowest point where the boundary side line 2.44 m away from the centerline of the line intersects with the bottom side line of the slab, and the clear height is 7.5 M. in this way, the height for railway electrification transformation and railway transformation in the future is reserved, 0.55 NL and 0.95 m, respectively. This facilitates the upgrading of railway transportation facilities in the future. Of course, if the bridge spans an electrified railway, the minimum safe distance from the live part of the power catenary to the bottom of the slab must also be considered in the calculation of the clear height under the bridge.

The most important and key problem in the construction of Cross railway road is the safety protection design. The first thing to consider is the safety of trains running on the railway line during construction. Some protective measures should be taken to ensure the safe passage of trains. The railway line should be reinforced by rail fastening. The foundation pit near the railway side should be excavated vertically. After the foundation pit is excavated, the abutment foundation and foundation pit backfilling should be carried out as soon as possible. After the bridge is erected and put into use, necessary protective measures shall be installed to ensure the safety of train operators and train personnel. Anti collision walls and protective nets shall be set on them. This is very important for the future. We can't be careless because it is not the main project of the project construction. Many times, details will become a hidden danger in life. The hardware facilities shall also be equipped with relevant software measures. It is strictly prohibited to install and erect pipelines transporting inflammable, explosive, chemical products and other dangerous goods within the scope of the bridge. In case of electrified railway, pay attention to the installation of lightning protection and grounding facilities in place to ensure the safety of pedestrians and vehicles on the bridge.

2. The road crosses the railway. This type belongs to Underpass type, that is, the main line passes under the intersection line with tunnels and some cuttings. This form is applicable to the overpass where the crossing line has a certain height of embankment and the main line can be crossed by slightly digging down. If the main line is constructed by jacking method, the normal channel of the existing cross line can

be effectively maintained. This kind of interchange occupies less land. If the upper line is in a convex position on the terrain, it is more advantageous to adopt this form. However, if this form is adopted in the city, the original underground pipeline is easy to be damaged when the lower line is excavated, and the drainage is also difficult. In the new project this year, the lizhan line K48 + 179.145 on Chengxi avenue of Guigang City intersects with the two tracks of lizhan railway. Because the passenger and material transportation of the railway line is relatively busy, the road crosses the railway in the form of tunnel. When designing the clear width of the road, due to the wide road width, there is a large difference between the width of the middle motor vehicle lane, there are green belts with a width twice that of both sides in the road, and municipal drainage pipes and other pipelines buried along the road about 2m below the non motor vehicle lanes on both sides, so there are many aspects that need to be considered in the design. In the clear height design, according to the combination form of the tunnel, the hole elevation on the top surface of the frame bottom plate on the cross section is 2.05 m lower on both sides than that in the middle, which increases the clear height of the side hole frame and meets the depth requirements of buried pipelines under the road surface of non motor vehicles.

Conclusions: In China, railway transportation is an important external transportation mode of cities. It started early and developed for a long time. With the expansion of China's urban scale in recent years, the scale of urban road construction is also expanding. In many areas, new urban roads intersect with existing or new railways. Therefore, we need to study the special node scheme of urban road and railway. The intersection of roads and railways will be an inevitable problem encountered in the national promotion of urbanization. In view of China's complex national conditions, changeable topography and various customs, when designing interchanges, we should consider not only the needs of economy and society, but also the constraints of cultural habits, so as to meet the vital needs of local people, Integrate the project construction into the people's life and take the people's interests as the ultimate starting point and foothold, so as to better benefit the people and benefit the country and the people.

Key words: behavioral psychology - road and railway - transportation

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RESEARCH AND SELECTION OF COMMUNICATION PROTOCOLS BASED ON MENTAL

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Background: Since the first implementation of ICQ in 1996, instant messaging system has developed rapidly. At present, it is not only used for text message transmission on the network, but also a composite communication tool including text, multimedia, file transmission and other functions. Instant messaging system plays a role not only in the field of user communication, but also in industrial fields, such as power, industrial manufacturing, telephone communication and other industries. Due to the development of instant messaging system in all walks of life, it often faces different network environments (LAN or WAN, different network connections such as cable, optical cable and WiFi) and different communication requirements (text, multimedia and file). The data transmission of instant messaging system is often affected by different bandwidth and delay, At the same time, the current Internet network does not provide quality of service guarantee. There are still many problems to be studied in instant messaging in such a network.

Objective: This paper focuses on the differences of instant messaging systems in different network environments, and analyzes them according to different services of instant messaging systems, such as communication, video, file transmission and so on. This paper selects different network protocols, analyzes the potential problems, and gives a feasible solution for the implementation of a real-time communication system that provides instant text communication, simple game, video and voice communication and file transmission under the Internet.

Subjects and methods: In order to transmit on the network, the instant messaging system must choose the appropriate transmission mode. According to the seven layer network model, the transport layer protocols TCP and UDP are mainly selected to transmit data on the network. TCP is the abbreviation of transmission control protocol. TCP is a connection oriented, reliable and byte stream based transport