

Research on Experiential Design of Automobile Exhibition Space

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Abstract—In recent years, designers have shifted from focusing on the auto product itself to the connection between "cars" and "people", mainly focusing on interactive and experiential designs. The variety of forms of the exhibition space design can arouse the interest of the visitors and mobilize the enthusiasm of the visitors to participate in the experience. This paper analyzes the characteristics of experiential design at home and abroad through literature research and field visits to Chinese and foreign excellent automobile exhibition spaces, and then explores relevant design strategies to provide design ideas and development possibilities and advantages for the future.

Keywords: *experience design, exhibition space design, car showrooms*

I. INTRODUCTION

China is a country with a large demand for automobile consumption. The booming automobile industry is accompanied by an immature automobile consumption market. At the same time, consumers have higher aesthetics and more requirements for automobile exhibition space. The car display space is simply divided into two types: as a static display of goods, the car product information is concentrated in the space to realize visual materialization and give visitors a visual experience. During the dynamic display, activities, operations, and interaction are used to let visitors more directly understand the functions and characteristics of automotive products. As designers continue to explore the field of automotive display space design, experiential display space design has emerged, with "experience" as the starting point. Visitors are enthusiastic about the various sensory experiences in the exhibition space, including the reflection of various car characteristics and corporate brand cultural characteristics in the space, which are forming effective experience interactions with visitors. In the design of automobile display space, it is of great importance to put people first in the design process and deal with the relationship among people, people and space, and people and exhibits. Through such an interactive relationship, it is especially important to combine information transmission with interactive experience.

II. THE CONCEPT AND CHARACTERISTICS OF EXPERIENTIAL DESIGN

A. The concept of experiential design

Experience refers to an internal reaction and cognitive state that people experience in person. From a psychological perspective, psychologist Freud proposed "experiencing the immediate feelings of people at a certain moment in life, including memories of past things, feelings about the current situation, and expectations for the future." In the car exhibition space, visitors' perception of existing car products and their experience of existing products form a future outlook on car experience. From a physiological perspective, experience has more diverse elements. Experience through the sensory experience of the visitor, that is, the external environment stimulates the senses of sight, hearing, and touch and so on. Visitors practice exploration by observing automobile exhibits, experiencing the operation of physical cars, listening to or reading stories of automobile brands.

B. Features of experiential design

The concept of automobile exhibition space is relatively broad. The existing automobile exhibition space in China includes museums, science and technology museums, automobile showrooms of 4S shops, etc. But no matter what kind of car showroom, it is developing in the direction of experiential design. In the design of the automobile exhibition space, the designer takes "human experience" as the core, focuses on integrating the experiential design concept, pays attention to the interaction between human sensory emotions and the exhibition space. The application of new technologies in the space increases the diversity of interactive experiences. The space is an experience center that integrates display, education, entertainment and other specific functions.

III. CASE ANALYSIS IN CHINA AND FOREIGN COUNTRIES

A. Experiential construction of Italian National Automobile Museum

The National Automobile Museum of Italy is located in Turin, the third largest city in Italy. It not only embodies Italy's long cultural history, but also is an important industrial center after World War II. It is especially famous

for its automotive manufacturing. The exterior building of the whole building adopts a streamlined design similar to a car, and the transparent metal curtain wall adds the coldness of the products of industrial era. The three floors of the building have different themes. The first floor is the design of the car, the second floor is the car and the people, and the third floor is the development of the car. The order of the visits is from top to bottom. First, the history of the birth, development, and evolution of the car is displayed on the third floor of the venue. The hall of the venue has a full black background, designed to create spotlight-like lighting, especially highlighting the exhibits and significantly showing the development history of the car in an interesting way. First, the car's predecessor, that is, the carriage in various forms, is displayed on a wall in the form of photos and models. In the museum, the first draft of the car design — the drawing of the first concept car designed by a remarkable talent of many years, Da Vinci, was restored into a physical object. Then came the original steam robot vehicle and modern energy-saving cars, which completely restored the development history of the car in the form of a model. At the same time, the museum collects 20 original cars from 1769 to 2006, involving more than 80 car brands in 8 countries. It is worth noting that the treasure of the museum tells the wonderful fate with China. In the 1907 car rally, the Itara 3545 drove from Beijing to Paris for a total of 60 days, finishing first, well ahead of the runner-up by 20 days. On the third floor, it not only shows the convenience of car civilization to human beings, but also warns people of environmental pollution caused by cars. On the other side of the black theme, it shows possible solutions for energy-efficient cars in the future. The second floor of the venue mainly displays cars and human-derived items, such as the 19th century automobile production line, the evolution history of engines and tires, etc., which has the effect of popularizing knowledge to visitors. The most eye-catching exhibition hall on the second floor is a map of Turin's city, and the ground is puzzle pieces consisting of hundreds of display screens. The picture not only shows the original appearance of Turin's city, but also labels all the car-related information, car manufacturers in the city, car design companies, etc. Also on the map, there is a Moore Dig 500 donated by a private collector and a model of the Turin landmark Mole Antonelliana on the roof. Another scene is the display of various types of racing cars. The racing cars are displayed on the display screen of the simulated racing track. The display of the screen gives the racing car a dynamic sense. The whole visit process is very interesting. The first floor of the venue mainly shows the design of cars, and the exhibition related to automobiles is mainly held to enhance the interactive experience with visitors.

The Italian National Automobile Museum's theme centers on cars, merging the cultural history of cars, collections of many classic cars, and exhibitions of designers' works, etc., which is not limited to the traditional way of display and textual display, but also uses a variety of dynamic methods to strengthen the theme. It also popularizes visitors' car knowledge with interactive experience, which

increases the fun of car knowledge and enhances the enthusiasm of visitors.

B. Experiential construction of Beijing Automobile Museum

As the first automobile museum in China, Beijing Automobile Museum has great historical significance for China's automobile exhibition space. The facade of the whole building is an aluminum metal mesh screen. Most of the facades on the first floor use glass curtain walls. The overall architectural style is streamlined. The overlook angle shape is similar to eyes. The shape is full of tension and has the dynamic of the car. The flat structure is more obvious; the middle of the second floor and above is a circular hollow, which is flexible around the atrium. The main exhibitions are on the fifth, fourth, and third floors. The corresponding contents are the creation hall, the progress hall, and the future hall. The corresponding main colors are red, yellow, and green. Each of the exhibition halls condenses the content of the entire floor, making each small part into a whole. The viewing order is from high to low. First, on the fifth floor, the main color is red. The eye-catching five-star red flag element is everywhere. It mainly shows the history of the development of the car. The exhibition hall is mainly model and multimedia. The birth and development of automobiles are integrated with Chinese elements, from the wheels that were first in the Chinese civilization to modern steam engines, from the display of some prototypes of foreign cars, to the first "Dongfeng" sedan produced since the founding of New China, the way of not being constrained by the traditional typesetting and layout, and flexibly using the space layout, show most of the cultural relics and vehicle prototypes. Visitors experience a vivid history of the development of cars. On the fourth floor, the main color is yellow. The "deconstructed car" at the entrance lays the tone of the entire venue. A car model is split into more than 20,000 parts and displayed in a hanging manner. The intuitive and stunning visual effects are presented in front of visitors. There are also many interactive scenes in the venue, such as the "Automobile Design" area. Through computer-aided design, visitors assemble auto parts by themselves to complete their own unique car design. "Extreme driving" in motorsport simulates the real racing scene, allowing visitors to experience the joy of galloping on the field. Among them, "Dancing with the Wind" and "Safety Performance Lab" in the engineering and technical venues allow visitors to learn aerodynamics and driving safety measures in immersive scenes. On the last third floor, the main color is green, and there is ubiquitous visual impact in the venue. The symbolic display of the entrance is countless small white squares. The green light penetrates behind the small white squares, and the small squares carry countless works of design competitions hosted in the museum, indicating that there are countless possibilities to create in the future. Among the scenes of car charm, one of them is that colorful posters are chaotically pasted on the surface of a car or floor, showing the era of car advertising to visitors in a pop art form. In the "Auto Life" exhibition area, the classic car scenes in the movie are displayed. Multimedia and mechanical transmissions provide visitors with a full-scale immersive experience that simulates

the real atmosphere of movie scenes. The third-floor exhibition hall also shows visitors the negative impact of cars on resources and the environment and the prospect of the coming of the intelligent era, which is of educational significance. Through the numerous experiences, the overall venue has given visitors a car museum with a combination of display, education, entertainment and experience.

IV. EXPERIENTIAL DESIGN STRATEGIES FOR AUTOMOTIVE EXHIBITION SPACE

A. *Focusing on the sensory and emotional experience of visitors*

In the design of experiential display space, designers should pay attention to creating display scenarios and the sensory experience and emotional atmosphere of visitors, so as to increase the value of exhibition content. The sensory experience includes sight, hearing, smell, and touch. Visually, the experience of the overall theme is particularly important. For example, in the Beijing Automobile Museum, each floor of the exhibition hall has its main color, and there is a red exhibition hall to express the sense of history as well as a green exhibition hall with a sense of science and technology, which have laid the foundation for creating a space atmosphere. The control of the details in the automobile museum is also particularly important. The presentation of the car's shape, material and color will help the audience to deepen their understanding of the car brand and culture. Acoustically, background music can shape the ambient atmosphere and express the meaning of the space, and at the same time distinguish the noise space, helping visitors to integrate into the scene faster. Emotional experiences include atmosphere creation and emotional resonance. Atmosphere creation can be understood as the expression of the theme in the exhibition hall. Circumstances are set in the scene. For example, the Italian National Automobile Museum has a total of three floors. Each floor has a corresponding theme. In the racing scene in the car and people showroom on the second floor, the Ferrari cars are displayed on the track in a uniform manner, as if you can experience the thrill and excitement of the race. Emotional resonance is the setting of scenes related to the daily life of the visitor, and it is more likely to cause the visitor to think and resonate. For example, in the Beijing Automobile Museum, the cars in the movies of "007" and "Batman 6" are moved to the exhibition hall. In the form of multimedia and mechanical transmission devices, immersive experiences are more likely to cause emotional resonance and produce emotional experiences.

B. *Focusing on the interactive experience of visitors*

In specific display scenarios, creating an interactive experience for visitors is particularly important. The first is the communication and thinking caused by the interaction between people. A single car chariot, the way of displaying pictures and text is far from enough, and more ways need to be provided. For example, in the Beijing Automobile Museum, to show the origin of the automobile, more questions are used to guide visitors into the experience. The

touch of multimedia technology and the induction device of various electronic screens allow visitors to have time to think and discuss with people around them, so as to form the interactive experience between people while learning automobile knowledge. The second is the interactive experience between people and technology. The existing multimedia technology not only allows visitors to experience the simple entertainment experience of simulating driving a car, but also is an experience process that is fun and educational. For example, in the "Auto Design" exhibition area of the Beijing Automobile Museum, with the help of computer-aided devices, people can design the whole vehicle or spare parts to design the car in their heart. In the "Children's Driving School" exhibition area, children can learn traffic knowledge through car simulation devices, and at the same time, the multimedia large screen can popularize self-protection knowledge while driving.

C. *Focusing on the application of new technologies*

In the context of the rapid development of science and technology, many new technologies have begun to appear, injecting new blood into the design of the experiential exhibition space, making the traditional exhibition space change from static to dynamic, from physical to virtual, and visitors can change from passive learners to experiencers. In the traditional display mode, the story is only narrated with the car as the theme. The new technology uses virtual images and virtual interaction as the carrier to present a diverse display scene to the visitors. The most common is the actual operation simulation technology. By simulating a certain scene around the driving of a car, you can complete experiences such as entertainment, education, and interaction. The second is multimedia touch screen technology. This technology can be used to display all aspects of the space. It has widely used automotive knowledge, panoramic map browsing, touch screen game interaction, and gives participants a variety of choices. The last is the holographic projection technology. This technology is not limited by the venue. Audiences can see clear images, comprehensive angles and three-dimensional objects, which more clearly display all kinds of information about the exhibits and increase the interest of the exhibition space and the interactive experience. For example, the light and shadow technology in the Beijing Automobile Museum, masters of automotive design, including William Maybat, are projected on the large screen. Visitors can talk with these masters through time and space.

V. CONCLUSION

It is a general trend that the automobile exhibition space brings various experiences to the public. Through the analysis of actual cases in China and foreign countries, this article finds some ready-made laws and finds some angles to dig. The designer takes the "experience" as the starting point and pays attention to the sensory and emotional experience of the visitor, which can significantly increase the participation of the visitor and lay emphasis on the resonance of the mind while paying attention to the sensory experience;

it pays attention to the interactive experience of visitors. When participating in the interaction, visitors deepen their understanding of the displayed information and form a deep understanding; they pay attention to the application of new technologies, increase the fun of experience, and experience the charm of high technology. These all provide some new perspectives for the design of automotive exhibition space. However, despite the fact that experiential design is actually applied to the automotive exhibition space, there are still many problems that need to be explored and discovered.

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