

Research on Educational Space Design for Preschool Children

Hanqiao Li

School of Architecture and Art, North China University of Technology, Beijing, China
2211419021@qq.com

Abstract: *Nowadays, children's education space has been recognized by many parents, which plays a very important role in the development of children. Children's physical and mental health development is closely related to their living and learning environment, which has an important impact on children's psychological development and character building in the process of growth. This paper analyzes the current situation of the design of preschool children's education space at home and abroad, summarizes the design strategy of preschool children's education space from the perspective of spatial theme positioning, color collocation and functional division, and carries out design practice in combination with specific projects. Finally, the design of the space and the concept of children's education fit each other, to design the education space suitable for children's study and life, so that children can grow and develop in a healthy and happy way.*

Keywords: Preschool children; Education space; Interior design.

1. INTRODUCTION

Children's physical and mental health development is closely related to their living and learning environment, which has an important impact on children's psychological development and character shaping during their growth. Nowadays, children's education space has attracted the attention of many parents, It plays a very important role in the growth of children, More parents are paying more and more attention to the overall environment of the space and internal facilities. There are many factors that influence the design of children's educational spaces, Color has a very important impact on children's daily life behavior and performance; The fit between the design of the space and the concept of children's education is also particularly important. How to perfectly combine educational needs with design requires continuous exploration; The design of children's educational space cannot be blind. It needs to be supported by corresponding design concepts and design themes, and a story-like little world of their own is created for children in the design. In summary, the design of children's educational space should not only be viewed from the perspective of visual beauty, but also comprehensively consider educational concepts, design themes and other factors, so that children can grow and develop in a healthy and happy way.

2. ANALYSIS OF THE CURRENT STATUS OF DOMESTIC AND FOREIGN DESIGN OF CHILDREN'S EDUCATIONAL SPACES

Nowadays, the times are constantly progressing, and China's society and economy are also developing continuously. Parents are increasingly interested in cultivating their children from an early age. Therefore, children's education space has attracted the attention of many parents, and it also plays a role in the growth of children. Playing a very important role, more parents are beginning to pay attention to the overall environment and internal facilities of the space.

2.1 Analysis on the Current Situation of Domestic Children's Education Space Design

China's children's education space has experienced a long period of development and transformation, 1998-2006 is the first stage, and 1990 is the second stage, have just begun to establish a standardized and scientific basis, but it is still in the preliminary exploration stage; From 2007 to 2009, it was in the stagnation stage; 2010-2015 is the third stage, Implement the spirit of the "National Medium and Long-term Education Reform and Development Plan (2010-2020)", "Several Opinions of the State Council on the Current Development of Preschool Education" emphasizes that "preschool education should be placed in a more important position", In this context, some studies start from the perspective of "children's" psychological development and perception, Discuss "Environmental Design", "Space" and other similar topics. 2016-2019 is the fourth phase, The public has high expectations for the improvement of the "quantity" and "quality" of preschool education institutions, "Kindergarten Environmental Design" incorporates specific educational concepts from the purely material concerns of "environmental design"

into spatial design. However, the current interior design status of many domestic children's education spaces is that they prefer to adopt traditional interior design, designed with overly bright colors and intricate decorations. However, it does not mean that the more colorful the color, the more suitable it is for children's physical and mental growth; in addition, the design of domestic educational spaces for children's education lacks the support of corresponding design concepts and design themes, The design techniques are monotonous and mediocre, resulting in "the design is far-fetched and meaningless, with no design theme", "the activity space is occupied by tables and chairs and lacks fun and interactivity", "the use of colors is complicated and the saturation is too high" and "the display area is scattered, The theme is not unified" and other situations. These problems are becoming more and more important today as interior design concepts continue to develop, This will cause the traditional interior design of children's education spaces to fall behind.

2.2 Analysis on the Current Situation of Children's Educational Space Design in Foreign Countries

Compared with China, foreign countries have many advantages that can be used as a reference in the design of children's education spaces. First of all, in addition to decorating the floor paving, ceiling, and walls, interior design should also pay attention to the selection of indoor facilities and items placed indoors to blend with the indoor environment. At the same time, attention should be paid to the quality of the items. quality. Secondly, the color used in interior design is also very important. Color has a very important impact on children's daily behavior and performance. The color matching of the wall should change according to different areas. Sky blue can make children calm down, green can make children use their brains to think, and yellow can give children a warm feeling... In the saturation of colors in terms of color selection, lower colors should be the main ones. Sometimes brighter and softer color combinations are more conducive to children's learning and life, and they also integrate more appropriately with the urban environment. Finally, paying attention to functionality also plays a very important role in the interior design of children's education spaces. It needs to be consistent with children's daily activities and the concept of children's education, so as to improve and combine the needs of education with the design. Children's needs can be met.

3. FACTORS INFLUENCING CHILDREN'S EDUCATION SPACE

3.1 Educational Philosophy Factors

Modern education concepts mention that children should be the main body, fully consider the characteristics of children's physical and mental growth, and enhance the sustainable development of children's physical, mental and intellectual development based on the analysis of children's pedagogy, psychology, and behavior. The current education model is constantly changing and improving, and more new education models are gradually being applied to the education of modern preschool children. Under different educational concepts, the space will have different educational model changes, thereby dividing and designing the space into different areas.

3.2 Spatial Layout Factors

Children's education space is a very important place for children to cultivate their educational habits, behavioral habits, and study habits before receiving school education. The rationality of spatial layout is the basis of preschool children's educational space design, and plays a very important role in the subsequent design of the space. The division of space can be divided into narrow educational space and broad educational space. Educational space in a narrow sense refers to: school education space, which is an activity in which educators, according to the requirements of a certain society or class, exert a purposeful and planned influence on the minds and bodies of the educated, and train them to become people needed by a certain society or class. space. Educational space in a broad sense refers to any space that can enhance people's knowledge and skills and influence people's ideological and moral activities.

3.3 Color Factor

In terms of natural appreciation and social activities, color is objectively a stimulus and symbol for people; subjectively it is a reaction and behavior. Color psychology begins through vision, and extends from perception and emotion to memory, thought, will, symbol, etc. Its reactions and changes are extremely complex. Children's understanding of the world begins with color. Color can help children perceive and become familiar with their own environment, and it can also have a certain impact on children's psychology.

4. CHILDREN'S EDUCATION SPACE DESIGN STRATEGY

4.1 Thematic Space Design Positioning

Different preschool education spaces have different geographical locations, cultural backgrounds and school running philosophies. At the beginning of the design, we must first consider the relevant factors of the design project itself, consult relevant information, and formulate the design concept and design theme. For example: Kido, a British preschool education brand, positioned the kindergarten as a community concept when designing. The space design revolved around art, imagination, literature, and play, which are concepts related to Kido's teaching. Children learn and grow here, play and make friends, and the open garden design provides them with unlimited possibilities. Therefore, when designing the educational space for preschool children, it is necessary to carry out thematic design so that preschool children can have an overall perception of the space they are in and learn and live in a story-like and situational space.

4.2 Rationalization of Color Matching

Among the characteristics that children's educational space needs to have, the first thing to consider is reasonable color matching. Color, as an emotional language, occupies the entire educational space, and children can see it everywhere. In order for children to grow up healthily in educational spaces, it is very important to consider how to design with color. Therefore, it is necessary to analyze the characteristics of children's vision and perception, as well as the characteristics of the relationship between children's needs and spatial color, and then design. In the design of children's education space, attention should be paid to the impact of color on children's psychological feelings. Cool colors will make children quiet and relaxed; warm colors will make them active and cheerful. The main colors should also use comfortable and elegant light colors to better show the specific shape of the space. At the same time, attention should be paid to the combination of cold and warm. Color also has identifiable characteristics. Children are more sensitive to color perception. Different colors can increase the recognition of space. For example, the space colors on each floor are different, and the colors of classroom door frames are also different, so that children can quickly locate their own classrooms. The indicative nature of color is equally important, and this feature should be paid attention to in the design of transportation spaces in educational spaces. For example, the corridors are decorated with colors to make the movement lines clearer, and the color design of the stairwells on different floors makes it easier for children to distinguish the relationship between floors.

4.3 Diversification of Functional Divisions

In addition to color matching, functional zoning characteristics should also be considered in children's education space. Properly planned functional zoning can make space segmentation clearer and clearer, making it easier for children to study and live. Summarize the functionally closely related parts of the space, divide and segment the parts that need to be separated, and thus form new functional divisions, so that the spatial structure can form a more reasonable whole on the basis of diversity. What should be paid attention to when dividing functional zones is: the use characteristics of each functional zone need to be clear to avoid their mutual influence; it must also be convenient to use and manage, and the circulation lines should be smooth and reasonable; usually it is composed of roads, tree walls, Functional partitions divided by buildings, sketches, structures, etc. require the construction of separate spatial areas.

5. SPACE DESIGN PRACTICE OF NINGBO BEELY FUTURE STAR KINDERGARTEN

5.1 Project Background and Needs Analysis

The background of the educational space is a kindergarten built at the Hangzhou Bay base of Geely Automobile Company. Located in Hangzhou Bay New District, Ningbo, Zhejiang Province. It faces the sea on the north side and the surrounding ecological environment is excellent.

According to demand, safety issues should be paid attention to in the design of children's education space. Children are naturally active, and indoor corners also need to be designed with rounded corners to eliminate potential safety hazards. The furniture is customized according to the height of children of different ages, and the positions of all power sockets and switches in the space must be arranged at a height out of reach of children. Secondly, pay

attention to the color, proportion, size, and form of the space when designing. Finally, in the design of each functional partition, it is necessary to ensure that the circulation lines are reasonably divided so that children's activities in this educational space can be carried out simply and orderly without interfering with each other.

5.2 Design Concept

The design concept of this project is centered on the word "Benyuan". The meaning of origin refers to the origin and origin of things; it also refers to the most important aspect of things. "Benyuan" represents the initial stage of children's life and is also an important stage in life. Therefore, the design of children's space should also pay more attention to the children themselves. Good interior space design can lay a good foundation for them during this time and give them a good start in life. Under this concept, the theme of this educational space is: "Origin of the Universe, Exploring the Future", it is integrated with Geely Group's concept of pursuing heaven, earth and the universe. Therefore, the theme and elements of the universe and space should be integrated into the design of children's education space, so that children can grow and progress in pursuing their origins and exploring the future.

5.3 Interior Space Design

This children's education space is divided into three floors. The overall design method is to divide each educational space through open semi-partition design, small box-type open design and other design methods, emphasizing interactivity, functionality and safety in the space. The first floor is equipped with a reception hall, administrative office area, logistics service area, and children's activity room. (Figure 1) The second floor is equipped with a children's activity room, STEAM function classroom, and administrative offices. (Figure 2) The third floor is equipped with children's activity room, STEAM function classroom, multi-functional hall and administrative office. (Figure 3)



Figure 1: First floor plan



Figure 2: Second floor plan



Figure 3: Third floor plan

5.3.1 Hall Design

The lobby is located on the east side of the first floor. Directly opposite the gate is the reception area, which is equipped with a small children's activity slide to provide reception services and children's entertainment. A morning inspection area is set up on the north side; a leisure reading area is set up on the south side, where parents and children can work, wait or read in this area; the south wall is used as a display area to display children's works and post announcements. The main color is blue, and the ceiling is designed with a circular shape as the basic

shape, just like a planet in the universe; the reading area is mainly sky blue in a semi-open design; the ground is wrapped with blue curves to wrap different areas, like an interstellar orbit in space, effectively divides the space and adds a lively effect to the indoor space of the kindergarten. (Figure 4)



Figure 4: Hall renderings

5.3.2 Toddler Activity Room Design

There are five areas in the children's activity room. The west side is the teaching activity area, where teaching aid storage cabinets, teaching TVs, teachers' desks and the display of cork board works on the wall are designed as a whole for teaching work; the south side is a mixed area, where children can choose their favorite learning method; the middle part is It is a dynamic area where children perform role-playing activities; the north side is the service area, which has toilets, washrooms and cloakrooms; the game area has game nets, soft-packed game areas, display cabinets, and the bathroom observation window allows teachers to observe children's behavior. Condition. This space is set to sleep and sleep mode. During lunch break, just take out the stacked bed placed in the southeast area. The entire space is rounded to ensure safety. In terms of color, the main colors of the space are wood and white. The ceiling is made of wood-colored aluminum square ceilings, which are matched with lamps and fans to make it clean and bright. The overall setting of the children's activity room is based on autonomy, appropriateness and experience, giving children sufficient space for life, entertainment, leisure, learning and display. (Figure 5)



Figure 5: Children's activity room renderings

5.3.3 STEAM Classroom Design.

STEAM classrooms are located on the southeast side of the second and third floors respectively. Set up low cabinets and wall cabinets and perforated boards to place the required tools; cork boards and writeable whiteboards are used for scribbling and posting works for display. The classroom passage is designed with an arched door frame, and the ceiling is equipped with a blue starry sky ceiling, planet lights and reflective light troughs. The children feel like they are in a space capsule, flying among the stars in the universe. (Figure 6)



Figure 6: STEAM classroom floor plan

5.3.4 Comprehensive Activity Room Design

The comprehensive activity room is located on the northeast side of the third floor. It is divided into three modes: Mode 1 is a music classroom, Mode 2 is a physical education classroom, and Mode 3 is a conference room and children's performance room. It can be used for music classes and indoor physical education classes on a daily basis, and can hold children's related performances on special festivals. It has a stage, a backstage waiting area and a sound control room. The color combination is mainly blue and orange. The stage uses a wooden veneer perforated sound-absorbing board as a background board. The ceiling is a blue square hollow ceiling with lamps embedded in it. The overall space is spacious and bright. (Figure 7)



Figure 7: Comprehensive activity room renderings.

5.3.5 Corridor Design

The overall three-story corridor is divided into three themes: "Interstellar Hill", "Space City" and "Planet Story", which are excessively colored. The "Interstellar Hill" theme on the first floor adopts a curved wall design, creating the effect of undulating hills in space; the "Space City" theme on the second floor adopts a zigzag wall design, which resembles the shape of a roof, and shuttles through the space. The corridors feel like walking in a space city; the "Planet Story" theme on the third floor adopts circular and arc designs, just like the planet in space. The corridor walls are combined with cork boards and magnetic boards to create a large space for children to display their works. (Figure 8, 9, 10)



Figure 8: "Star Hill" theme corridor on the first floor



Figure 9: "Space City" themed corridor on the second floor



Figure 10: "Planet Story" themed corridor on the second floor

6. CONCLUSION

Children are the hopes of our future. The growth of young children is particularly important for them, and the environment in which they live and study will have an important impact on their healthy growth. The design of children's educational space should focus on the individual children themselves. The design of children's educational space should focus on the individual children themselves. At the same time, designers should learn from foreign excellent design techniques, learn from experience, seek common ground while reserving differences, and find a path suitable for the design of kindergartens in my country, so as to achieve the design purpose of "teaching environment and education".

REFERENCES

- [1] Zhang Liwei, Lu Feifei. A brief discussion on the impact of color in product design on children's physiology and psychology [J]. Culture and Exploration, 2018(4): 131.
- [2] Wang Zhiqiang. Education through fun—Interesting exploration in kindergarten space design [J]. Education and Teaching Forum, 2017(12): 247-248.
- [3] Su Yang. Kindergarten architectural design based on visual perception theory[J]. Shanxi Architecture, 2010, 36(17): 23-24.
- [4] Li Zhimin, Wang Yan. Architectural space environment and behavior[M]. Wuhan: Huazhong University of Science and Technology Press, 2011.
- [5] Xu Yanhua, He Li, Hao Jingxin. A brief analysis of the spatial variability of kindergarten activity units[J]. Shanxi Architecture, 2010, 36 (04): 53-55.
- [6] Wang Zelin. A brief analysis of the application of design philosophy in children's room interior design [J]. China Packaging, 2021, 41 (02): 54.
- [7] Liu Ke. Research on indoor space environment design of kindergarten[J]. Art Criticism, 2017, (9): 183-184.
- [8] Wang Yuanze. Research on indoor environment design of kindergarten based on scenario concept [D]. Shenyang: Shenyang University of Aeronautics and Astronautics, 2015: 78.
- [9] Zhou Yao. A brief discussion on kindergarten interior design[J]. Jiangxi Building Materials, 2017 (20): 30, 33.
- [10] Liu Xiaoyan. Kindergarten architectural design to create interesting space [D]. Tianjin: Tianjin University, 2012.