
MAIN DIRECTIONS OF PRODUCT DESIGN FOR AUTISTIC CHILDREN IN THE CONTEXT OF INTERACTION DESIGN

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1、 Foreword

Autism, also known as autism or autism disorder, is a representative disease of pervasive developmental disorders. According to the statistics of the 2007 National Census of Persons with Disabilities, the number of autistic children in China has reached about 7,225,800, and the number of autistic children is about 3.363 million, ranking first in China's mental disability. This trend has aroused widespread social concern.

For the group of autistic children, autistic children's products have emerged. However, China's autistic children's products mainly have the following problems. 1) The number of products for children with autism is relatively lacking. 2) The existing autistic children's products sold on the market are single and repeated, lack of independent innovation and core technology, and research on this product, 3) Most of the

toys for autistic children on the domestic market are rehabilitation intervention treatment aids, and lack the interactivity of games

Based on the above questions, we conducted relevant investigations on the design of products for autistic children in the context of interaction design, and found the main direction for the design of autistic children.

2、 The purpose of research

In recent years, China has gradually increased its attention to autistic patients. Therefore, we look for a feasible direction for the design of products for children with autism in the context of interaction design.

Autism is divided into true autism and pseudo-autism, and true autism is rare, and most autistic people are pseudo-autism. Patients with pseudo-autism mean that there are no organic lesions in the thinking area of the brain and have normal thinking ability, but their lack of intelligence is due to the imbalance in the development of an acquired ability. Three main core symptoms occur: social communication disorders, communication disorders, narrow interests, and stereotyped and repetitive behaviors. Therefore, it can play a therapeutic role through certain rehabilitation training. In the age range of patients from 3 to 12 years old, that is, childhood, is the most productive stage of rehabilitation training. Therefore, toys for children with autism are an extremely important part of rehabilitation training.

We look for a feasible direction for the product design of autistic children in the context of interaction design, through data collection, theoretical analysis and research on audience behavior, aiming to standardize autistic children's products through Internet + and other means and improve the connection and interaction

between products and users, improve the intelligence of products, can target different patients, give full play to its maximum effect, emphasize the people-oriented design concept, and reflect the particularity and humanistic care of autistic children's products. Provide feasible direction for the product design of autistic children in China, form diversified products, and optimize product structure. The product design under the influence of the interaction concept provides the possibility for autistic children to express their emotions and communicate with the outside world. Based on this, this paper conducts an in-depth analysis and exploration on the design direction and strategy of toys for children with autism under interaction design from the perspective of theory and practice.

3、 Research methods

In view of the particularities of the physical and mental aspects of autistic children and the limiting factors, the research methods mainly focus on data collection and theoretical analysis, and summarize, summarize and summarize the characteristics of different symptoms of autistic children and the basic theories of the knowledge involved, so as to extract the elements required for toy design for autistic children. In the follow-up research stage, some practical investigation and investigation are required, through the observation and understanding of many autistic children for a long time, from the actual in-depth understanding of their characteristics and needs, and then solve the actual problems of users according to the needs, and finally, the extracted design elements are combined with the relevant theories of autistic children's psychology and product design, so that the two can complement each other.

(1) Study the characteristics of children with autism

The so-called autism, also known as autism in daily life, usually appears in infancy and toddlers. Its main characteristics are: (1) significant social impairment (2) communication disorder (3) repetitive stereotype (4) lack of broad interests. Compared to normal children, autistic children have their own unique cognitive and behavioral characteristics, and understanding their cognitive and behavioral characteristics helps us in later design. At present, there are three indoor cotton drag styles on the market:

a) Cognitive characteristics

Cognitive trait, the process by which a person acquires and uses knowledge, is a fundamental mental process. It will conduct research and analysis on language cognition, attention, memory and intelligence, self and emotion.

b) Behavioral characteristics

Children with autism often behave differently than ordinary people and always make some incomprehensible actions. Its behavioral characteristics are mainly manifested as: stereotyped behavior, purposeless activities and excessive activities, and social interaction disorders.

(2) Analysis of existing toy flashpoints for children with autism

In view of the cognitive and behavioral characteristics of autistic children, the current rehabilitation toys for autistic children mainly include the following categories:

a) Mood relief class

Attention intervention toys include but are not limited to sound, light, overall

movement and limited partial movement, mainly to train autistic children's ability to concentrate, so that his attention span is longer.

b) Sensory integration class

Sensory integration toys calm and relax through light stimulation and touch stimulation, such as the most commonly used stud toys for autistic children, which can give autistic children safe stimulation and calm their emotions, so as not to hurt them in their search for self-stimulation.

c) Cognitive limitations class

Such toys help autistic children recognize objects in daily life through pictures or physical forms.

If there are four color cardboard boxes and four colors corresponding to round flat objects of toys, the toy is trained to let autistic children master the basic concept of buttoning by throwing a button-like round object into a hole of the corresponding size, so as to generalize it to daily life.

d) Social interaction class

This type of toy is mainly intended to develop the social skills of autistic children, the main types are robots, cue cards, etc., such as QT robot will play card games with children, tell stories, ask questions and answer questions. The design of these games and story content is mainly to teach autistic children a variety of social, emotional and communicative skills, and at the same time to expand the cognitive limitations of autistic children.

4、 The purpose of research

(1) The main design direction of toys for children with autism in the

context of interaction design

From the perspective of development and combined with the current situation in China, toy research for children with autism should start from the interactive characteristics of products, emphasize the interaction between toys and children, and truly let children receive humanistic care while feeling the fun of play, and achieve good rehabilitation intervention effects.

(2) Improve toy design based on the senses of children with autism

1) Appearance improvement: replace the toy image with stiff lines through cute cartoon images, and adopt more sleek chamfered structures to bring a gentle sensory experience to autistic children 2) Color considerations: Autistic children have defects in their cognition of the world, so they mostly perceive the world in a visual way. Therefore, a color scheme with high contrast and saturation should be adopted to attract the attention of children 3) Multi-sensory integration: For single-sensory toys for children with autism, consider the design method of multi-sensory integration, and present color, sound and light fusion with toys, such as integrating music integrated chips in building block game toys, which have multiple functions such as color recognition, music therapy, and tactile desensitization, which can improve the sensory integration ability of autistic children as a whole.

(3) Emphasize the interactive mode of toy design for children with autism

The interactive mode of toy design for children with autism can be divided into two aspects:

a. The interaction between children and toys Based on the fact that most

children with autism are accompanied by symptoms of mental retardation, the design based on the normal children's toy interaction mode is not suitable for the physiological level of autistic children. For example, autistic children play with toys and lag behind normal children, and are not suitable for accepting complex game rules. Another example is that autistic children play with toys with a single behavior, usually appear without touching toys, quietly watching from the sidelines. In order to realize the interaction between children and toys, the difficulty level of toys can be deliberately designed, and children with autism can be gradually induced to explore the toys themselves. Or arrange visual, tactile, and auditory feedback when children with autism play with toys. Or map real-life combination objects with the behavior pattern of playing with toys, so that autistic children can exercise their life skills in the process of playing with toys.

b. Communication between the child and his playmates

By integrating the playmate collaboration model into toys for autistic children, promote communication between autistic children and their surroundings. For example, designing parent-child games, focusing on the participation of relatives, to achieve guidance for autistic children, and promote dialogue between autistic children and guides; Designing small-scale group play, when autistic children join the group play, cooperate with each other, which will promote their communication, but the scale of cooperation needs to be carefully considered to avoid unnecessary harm to children due to the loss of emotional control of autistic children.