

The design of children's educational toys

Fangmin Yuan^a, Junchao Zhang^b

Zhengzhou university of industrial technology, Zhengzhou 45000, China

^a395002786@qq.com, ^b957941427@qq.com

Abstract: The educational toys is a kind of integrating、 educational、 fun products. All of logical thinking ability, memory, ability, willpower can get plenty of exercise in the process of the children at play. This topic combined with 2-4 years old children's physical characteristics and requirements, according to the number "12", associated with the twelve months of the year, clock calibration of twelve, and with Chinese cultural characteristics of the Chinese zodiac. The toy is according to the number and color of the order 12 balls, twelve Numbers, zodiac place quickly, help children to understand number, distinguish between colors and the Chinese zodiac, and exercise of children's hand, eye, and brain coordination ability, at the same time can also be multiplayer, education children learn to share, to the children's good character shape has a certain significance.

Keywords: Educational, Children's toys, twelve

I. The research of market analysis

1. the characteristics of the existing children's toys on the market of

Through research between similar products on the market, found that modern toys on the market tend to be more westernized, such as transformers, Disney, etc., However, The toy with Chinese culture are less; And about educational function to the design of this subject object - 2-4 years old children is complicated; For children toys designed function is single, which from color、 digital、 clock、 graphics, Chinese zodiac are not formed a system design.

2. The characteristics of 2-4 years old

(1). 2 years old children, began to babble, understanding of color and 12 digital ability is weak, with a weaker discrimination, beginning, stability and the coordinated ability is weak.

(2). 3 years old children, began to learn the colors and Numbers with the help of parents, began to learn some simple geometric shapes (for example, triangle, square, star, etc.)、 small animals, and cultivate the ability of children, having a certain stability and harmony.

(3). 4 years old children begin to familiar with color, digital, graphics, having begun to read kindergarten class, having the strong beginning ability, and having the consciousness to share with other children.

II. The design of orientation

1. Functions: meet the understanding of the color, graphics, digital, The toy develop children's thinking ability, practical ability and coordination ability, making the product more interesting. Not only it let the children play without parents, can be multiple children play together at the same time.

2. Style: use the children's favorite, easy to operate, easy to operation model; With China's special culture image.

3. Color: The colour is children acceptable, high purity, low lightness, relatively rich color.

4. The man-machine: according to 2-4 years old children of the size to choose the size, which is appropriate.

5. Security: Safety is first principle about children's products , so choose to use safety strong plastic or using natural materials - wood.

III. The design of process

1. Rendering

Through comparative analysis of various schemes identifies a "12:00 clock" as the theme of package:

Series solutions 1: the educational toys for children "12 balls - the right number, color design



Fig. 1 series 1 rendering

Solution characteristic 1: The modelling adopts children familiar geometry , like windmills, contains a circular, spherical, fan-shaped, which is more likely to be accepted (as shown in figure 1).

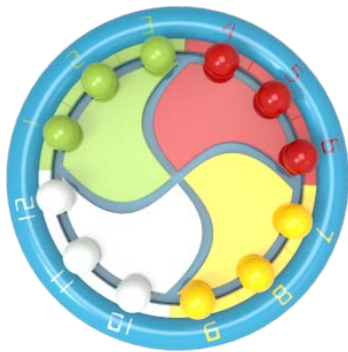


Fig. 2 series 1 color rendering

Solution characteristic 2: This toy windmill of middle part is divided into four regions, representing the spring, summer, autumn, winter, outer contour using circular, meaning rebirth cycle of all the year round. And colour are made with the characteristics of the four seasons color gives priority to tone, the vitality of spring, all things recovery of her honey haired Yang fire cyan, summer, autumn fruits of yellow, red winter's Snow White. Outlines the blue color, that is, on behalf of all the year round clear, blue sky (see figure 2).



Fig.3 series 1 function rendering

Solution characteristic 3: many modes, disturb the order of the ball, the ball position, let children every three balls and corresponding area on the colors of the same, and blue are marked on the outer contour Arabic Numbers 1, 2, 3, 4, etc., children can according to color, can also according to the number of balls in the shortest time, at the same time also can people play together, help children's knowledge and understanding of the colors and Numbers, learning new knowledge, the exercise of children's hand, eye, and brain coordination ability (as shown in figure 3).

Series solution 2: the educational toys for children - "12 Numbers - Numbers, colors, right design



Fig. 4 series 2 renderings

Solution features 2: with the series 1, another 12 digital scale and represent the twelve hour hand of the clock, and twelve balls corresponding to have the same effect (as shown in figure 5).

Solution features 3: many modes, disturb the order of the digital clock, the clock dial, let children children can according to color, can also according to the color will be dislocated clock calibration place quickly, help children understand the structure of the clock, and teach children in a different color and digital identification (see figure 6).



Fig.5 series 2 color rendering



Fig.6 series 2 function rendering

Series solution 3: educational toys for children in the "Chinese zodiac - belong to the right number, color design



Fig.7 series 3 renderings

Solution features 1: in terms of shape, and the series 1, and two series, features the same and the Chinese zodiac animal portraits, easier to be close to children (as shown in figure 7).

Solution features 2: contain certain Chinese culture, in addition to the series 1, the characteristic, the series 2 stated add elements of the Chinese zodiac, and toys are available right advantages according to the Chinese zodiac, a mouse, cattle, tiger, four rabbit has a profound cultural background (as shown in figure 8).

Solution features 3: Style diversity, the same as the series 1 and series 2 play (as shown in figure 9).

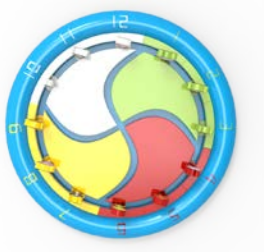


Fig.8 series 3 color rendering



Fig. 9 series 3 rendering function

2.The use of rendering



Fig.9 the use of rendering

This design is to break the westernization of past educational toys for children, from 12 balls, twelve Chinese zodiac and Numbers and different colour design, familiar with the modelling of the windmill is to adopt children, among the four petals represents a year the four seasons of reincarnation, outer contour with round shape, in blue color, the significance of the blue sky all over the world, the sky will have an air of the world's four seasons and Chinese cultural characteristics of the Chinese zodiac perfect combination, to China's toy brought new vigor and vitality to the world, the key can be accompanied by long or at home and friends a play, cultivate children's ability to share.

3.The three view drawing

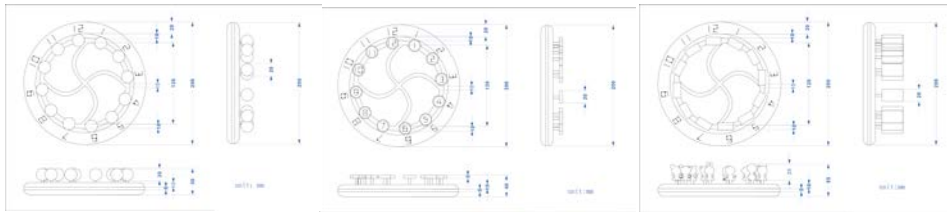


Fig.10 the three view drawing

4.Program analysis

A color classification toys to twelve figures, the order of the adult can throw the ball, let the children to give a small ball in a short time to restore to its original position, which is divided into four regions, and represents a year of spring, summer, autumn and winter, the color of the four regions also to represent their seasonal colour gives priority to tone, with round shape, meaning a year the four seasons of reincarnation, headed by four regions and twelve balls, representing the twelve months of a year, at the same time, to semantic for extensions, can put the twelve months to replace Chinese zodiac, clocks and watches of twelve scale, Chinese zodiac animal portraits, not only to attract children's interest, and with the Chinese culture, is a profound educational toys, clocks and watches of twelve scale, can teach children to know the time, know Numbers, a toy, a variety of gameplay, and colourful, attract the interest of children.

6.Conclusions

The toy safety mainly adopts the safe plastic and green environmental protection material, neither damage children's skin, does not pollute the environment, let the child safety, rest assured, happy to play; The toy mainly through man-machine sex toys are comfortable to withdrawal, conforms to the man-machine engineering principle of children, easy to children's play; The toy of interest mainly through different forms of children's play to increase the diversity of toys, toys, different style, to add to the fun; The toy YiZhiXing mainly through the children play in the process of thinking, and ability to develop children's intelligence; The toy of interactivity mainly through multiple children or parents and children play together to add the function of the toy and meaning.

References

- [1] beam Ai jade-like stone. Educational education product standard system research to explore [N]. Guangdong science and technology, 2013
- [2] czy. Toy design [M]. Nanjing: nanjing normal university press, 2009
- [3] Luo Bijuan. Humanized design of children's products [J]. Journal of packaging engineering, 2006
- [4] Song Jun. Children's educational toys design principle of the study [J]. Journal of packaging engineering, 2007
- [5] Li Zhuzhi. Toy design [M]. Beijing: chemical industry press, 2007
- [6] jean valjean, Jody, Zou Yue. Toy idea [M]. Nanjing: nanjing normal university press, 2010