

A Basic Study on Foldable Container -Based on Toy-Foldable Container Product

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ABSTRACT

The purpose of this study was to quantify the emotional design and designs a kind of toy-foldable container to create new market and occupy it. Through analyzing the characteristics of activities and behavior about the target using-crowd, we get the direction for this design. And design a kind of new container for loading toys, with the mat's function and can be folded convenient too. This will meet demand of the customers, and the most important point is to create new market.

Keywords: Foldable, Mat, Convenience, Security

1 Background

As developing of science and technology, meeting the demand on the basis of material, people began to pay more attention to the quality of their spiritual life, and tried to make their life more colorful and reasonable. The children becomes one of the most main beneficiaries of this new century. Compared with the original, getting a lot of toys is no longer a luxury, but there is a big problem about arranging the toys. Fast-paced life brings a lot of additional pressure and housework for the mothers in particular. These reasons bring us a new chance to design a kind of container to help them with this problem, and create a new market.

2 Pre-research analysis

2.1 Analysis of the existing products

The containers which exist in the market always get the similar profile, and are difficult to move when they are full filled; also they occupy too much space when we do not need them.

2.2 Analysis of the target customers

We divide the target customers into two parts: the children and the mothers. Because the children is the largest "Toys-consuming group". And the mothers are always the workers who clean up the toys instead of the children. Through analyzing each part of the target customers respectively, we get their own characteristics of behavior and

activities, and get the information about which kind of toy-container with what function they like better.

For the children:

(1) We do the research about the children's activities and what kind of toys do boys (and girls) like best, and find that:

The girls like to play with all kinds of dolls best, and they also like different kinds of Lego & Blocks.

The boys like to play with different kinds of mechanical toys, such as trains and cars.

(2) Playing with different kinds of toys needs different space : (Figure 1)

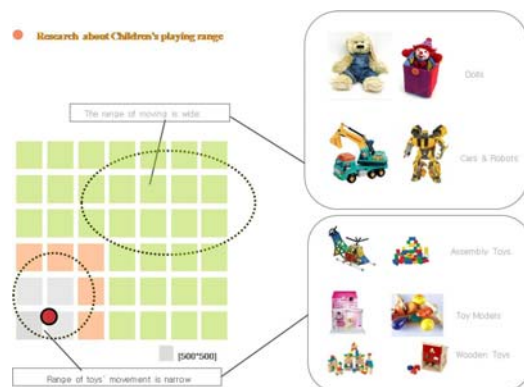


Figure 1 the space taking by different toys

We use a 500 * 500 square as a unit to calculate space that is needed for different activities.

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Usually, it is enough for children to play toys in a space with 10 that kind of squares.

For the mothers:

- (1) We analyze the activities of the mothers with the method of scenario. And find that, the modern mothers always get heavy houseworks. (Figure 2)



Figure 2 Analysis of House work

- (2) From the research above, we are aware of that the mothers care about such words toward the toy-container: "Saving time", "Easy to storage", "Safety for children"

2.3 Analysis of key issues

We find the keywords about the toy-container above. In short, there are only two words here to help us get the idea about the toy-container design--"Security"and "Convenience".(Table 1)



Table 1 Find keywords about toy-container

We can treat "Security" as "No hard edges to heart children" and "Reduce the phenomenon of trip". And "Convenience" as "Take and put the toys easily", "Easy to storage", "Easy to clean up the toys".

3. New Idea

"Container" means having the function as the box, if we can make a combination with the "mat", it will be more reasonable for children's activities, with adding the concept "Collapsible".

The children could play on the mat, and this prevent them from getting cold, and the soft mat could mitigate the impact when they fall by careless. -- "Security".

The function of "Foldable" could save a lot of time to clean up the toys—"Convenience" (Figure3)

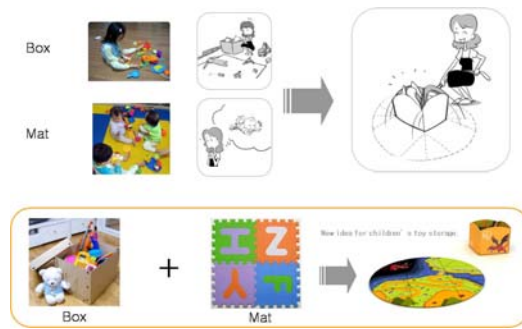


Figure3New idea

4. Analysis of Dimensions

(Comparative analysis of four possible options)

We compare these four different forms, and choose the final program from the each plate size of composition, the spatial content, weight, and so on, following the data we get about the space the toys usually take. (Figure 4 5 6 7)

- (1)

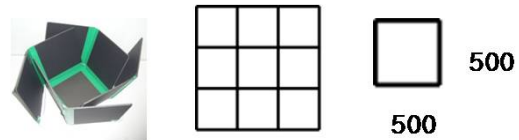


Figure4

The shape of each plate is square. This kind of combination uses many plates to complete, and because of each plate's size is suitable, the space leaving is ok but with a cumbersome body. It is too heavy for the children and the mothers to take, and is not convenient.

- (2)

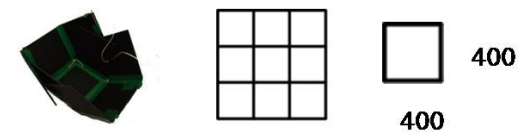


Figure5

The shape of each plate is square. The size of each plate is not big enough, and it is also only to make the space smaller by this kind of method of combining.

- (3)

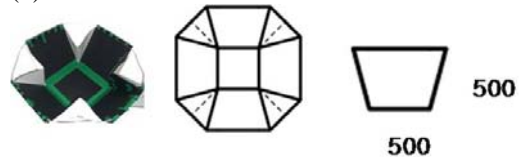


Figure6

The shape of trapezoidal is easily to be accepted more than the cube, but because of this special shape its stability is not good, and easily to fall down. Its usability and storage is weak too.

(4)

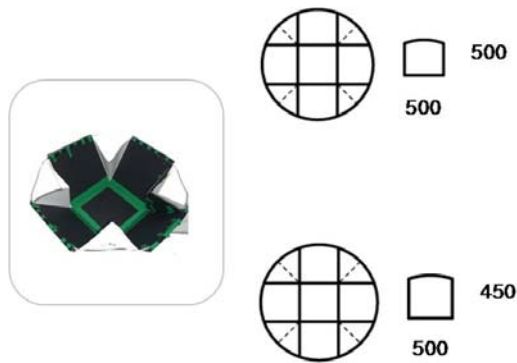


Figure7

The shap of each main plate is good; the surface is smaller than a cube's shape, and the suitable height is 450.

Through the analysis of these 4 kind of different forms, we choose the last one as the final form.

5. Analysis of Structure and Material

5.1 Research on the structure and the material

We divide this toy-container into two parts, and let it complete the function of both box and mat.

(Figure8)

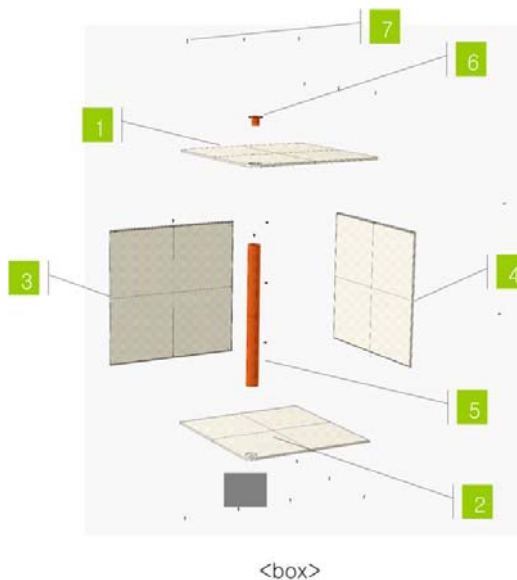


Figure8 Structure of the box

Special function:

5, 6 and 7 have the function to support the entire structure

Material:

1,2,3,4 MDF, this kind of material's price is low, and the weight is suitable to be used here.

5,6,7 Plastic, this kind of material is cheap, popular and it can be under a certain pressure(Figure9)

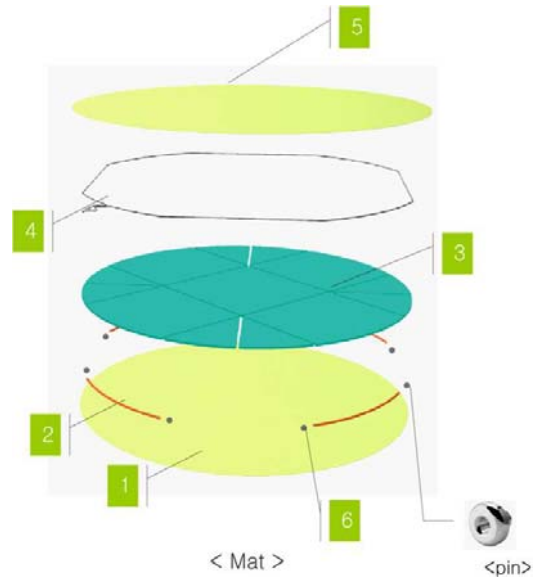


Figure 9 Structure of the container

Special function:

2 and 6 are used to change the form of the toy-container into mat or just stay the form.

4 has the function to support the structure.

Material:

1and5 SHEET – waterproof vinyl

Use waterproof material, because this surface is on the above of the mat. Prevent from being got dirty.

2, TUBE – rubber

Use this soft material for children's toys.

3, ROPE – soft cloth

Use soft and strong wire to fold and unfold efficiency.

4, Mat - EVA

EVA is a soft and elastic material.

6, PIN - steel

Use strong steel material is suitable for pins.

6 Special Design



Figure10 Different patterns

We design different patterns for different kinds of toys, so match the children's different feeling. Increasing the factors of appreciation let the children enjoy their playing.

7 Display of model

The whole process about opening the container (Figure 11)



Figure 11 Display

8 Value

The purpose of our research is just create new type of toy-container and the new market, In order to be more competitive, we should understand the single-function similar products that exist in the market.(Figure 12)



Figure 12 Competitor

From this picture, we can get more information about the similar products' price and their corresponding patterns, to establish the status of this product.

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