

A New Design Method of Grafting Method in Furniture Design and its Creations

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Abstract: With the rapid changes in the times and more innovative industrial technology, the products of the same attributes on the market have become more diversified. Therefore, how to make a market segmentation for stand out under the choice of consumers? Product designers must consider the added value for consumers. Furniture is the main creative theme, used the concept of "grafting of plants" in agronomy as the design methods, and developing a set of "Grafting furniture design method". Using the "Grafting furniture design method" and applying it to 7 projects of furniture creation, and obtained the following results: 1. The "Grafting furniture design method" is conducive to breaking through the traditional way, which is more creativity and efficiency. 2. Through the association of ideas and experience memory, to construct the ideal product style. 3. Improve the functionality and volume of furniture design, to solve the problem of insufficient home space. 4. By means of a multi-component "aggregation", can cause visual conflicts and also an innovative design performance. 5. More efficiency for design, enhance product added value and provide a new model of the design method.

Keywords: Deconstructionism, Grafting furniture design, Design methods, Furniture design

I. INTRODUCTION

Nowadays, consumers' demand for products is gradually increasing. In terms of product design, designers must be different from the traditional way of constructing. They can avoid the stereotypes given by old products, enhance the added value and produce diversity products, and then have the opportunity to meet the needs of modern consumers. It is even more important to seek a new design method Chai (2011).

In the application of agriculture, the grafting method is to connect the branches or buds of flowers and trees to another plant with close kinship, so they can heal into new plants. Grafting method can be used for early flowering, improving adaptability and still be retaining the characteristics of the variety (Sun, 1996).

II. LITERATURE REVIEW

This paper mainly explores people's needs and tries to use the "Grafting method" combine product functions and forms to achieve product design that meets the demand conditions. To break through the traditional product composition, then to innovate and practicality. The characteristics of grafting are as follows:

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The term "grafting" is widely used in agricultural technology, and there are many grafting techniques for plants. These methods correspond to different needs and conditions in agronomy, the main grafting methods can be divided into three types: 1. Branching: include small cut, splicing. 2. Budding. 3. Docking: lap joints. From the grafting plants, it can be found that grafting is to use different plants to produce new plants that meet the requirements (Ma. et al., 2007).

The grafting can be explained by the combination of different objects to achieve the "Conditions" and "Likeness"; and such objects constitute concepts was similar to "Deconstructionism" (Zhuang, 2008; Fang, 2008; Huang, 2007; Li, 1988).

The features of Deconstructionism is disassembling and dissecting of the content of the text and adding new concepts to make the text rich in new meaning (Wang, 1993; Ou, 1998; Yan, 1994). However, such a method can also be regarded as the capture of function and shape and reconstructed the object. In the agronomy, the grafting of plants uses the same concept to obtain the features of the desired plant. As shown in Fig. 1:

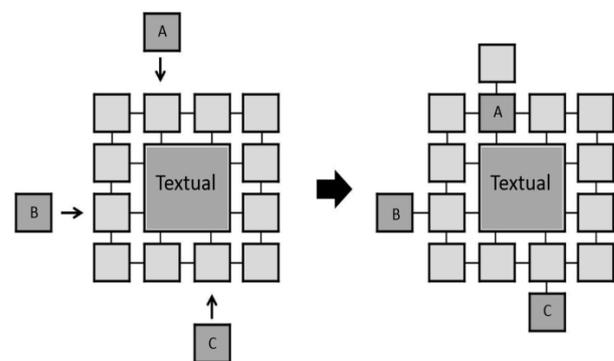


Fig. 1 The features of text grafting of deconstructionism

The use of the "grafting" requires the differences composition to determine the appearance of the product. However, such a design approach may result in a purposeless combination, so it is necessary to explore the correlation between these components.

The idea of "associative thinking" refers to the rules that people follow when they associate things, these rules exist in the people's brain, and depends on the life experience, background, knowledge and personal interests, it is often large and complex (Yian, 2003; Zhu, et al., 2007). By the associative thinking we can obtain the design components and meet the requirements, and try to decompose or join these components into the target products, then get the ideal products.



Associative thinking is a kind of ideological activity unique to human beings. It is the psychological process of recalling other things from the current things and the reaction in the brain (Chen, 2010). Memory sleeps deep in the brain, and associative thinking is the lead of waking memory (Takahashi, 1988). The early psychological process mainly came from the “Associationism”, which said: “Psychology or consciousness is composed of many ideas” (Yeh, 1998), and the Greek philosopher Aristotle has proposed the following 3 philosophies: 1. The principle of contiguity. 2. The principle of similarity. 3. The principle of contrast, can be used as a reference for associative thinking.

By the theory of deconstructionism, we can find the characteristic of grafting is to join the components of different objects, to achieve the value-added. Through the analysis of similar conceptual products related to existing products, how they performance of “grafting” in product design? Are discussed as a design reference for this paper.

1. The Vise Light

Design by Brooklyn designer BecBrittain, the Vise light named after the form of a vise, grafting the form of sunset and vise. This design combines linear geometric representations with beautiful arcs to create a conflicting design aesthetic.

2. The Overdose Desk

The Overdose Desk was created by the designer Bram boo from Belgium. The design is inspired by his own experience and needs. This product shows a disorderly and lively dynamic visually, this workbench provides an unconstrained workspace, and have several cabinets of different sizes, and to graft them together.



Fig. 2 The Vise Light (Source: <http://design-milk.com/>)



Fig. 3 The Overdose Desk (Source: <http://www.stylepark.com/>)

3. The Booken

The “Booken” was created by British designers, Yael Mer and Shay Alkalay. This table does not have desktop, it grafts the bookshelf and desktop and uses the back of the book to be a plane.

They said nowadays books have gradually been replaced by digitalization, so they combine both of it and reinterpret the table.

4. The Abooba

Designed by Korean designer Kim Jae-Wook, it is a seat that provides interaction between children and parents. The biggest feature is the shape of the rope ladder to grafting with the seat and cleverly combining them, providing children for fun.



Fig. 4 The Booken (Source: <http://materialicious.com/>)



Fig. 5 The Abooba (Source: <http://www.designboom.com/>)

III. RESULTS- ANALYSIS OF GRAFTING METHOD AND THE CREATIONS

Different products have its characteristics and features, it needs to be integrated by past experience and referring to whether different characteristics and functional attributes can complement each other is the key points of grafting method. Takahashi Kohara (1988) proposed that associative thinking is the easiest and cheapest key to unlocking the deepest memories of mind, and use it can make innovative breakthroughs in a timely manner.

After analysis, study found that the design context of grafting method is as shown in the following figure. Linking the elements that may solve the problem in associative thinking, and trying to extract the design elements that can be combined, which can added value and function enhancement. This design context can be used to discover problems in life.



The creation will be based on the above-mentioned the design context of grafting method, hope that this design method break through the traditional product design performance, provide a new design thinking and application, and develop a multi-product that meets the needs. The following is a description of the design creation.

1. The side desk bench

In department or dorm room, there was not enough space to accommodate a sofa, it was common to have a bench that would provide guests for a short break. Consumers hope that the bench will have more functions.

Association thinking with the experience of dorm room environment, found that bench needs a small side table in order to provide temporary storage of food or items. Therefore, try to grafting the small side table and bench.

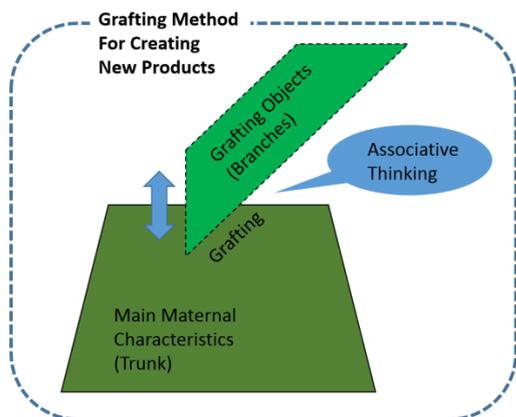


Fig. 6 The design context of grafting method



Fig. 7 The creation of side desk bench

2. The Bookshelf side table

Nowadays, the books are gradually being replaced by internet, it is no need to buy a bookshelf.

Through life experience from the use of the side table, this design grafts the structure of the bookshelf and the side table, effectively uses the frame structure to fill the space under the desktop, so that two structures complement each other, and meet the use of less book storage and desktop platforms.



Fig. 8 The creation of the bookshelf side table

3. The cookie chair

Through the experience of life, we found out that there are sporadic objects everywhere all around the house, people often don't know how to store it. Through this phenomenon, we grafting the storage tube and chair which not only retains the function of the chair, but also provides the hidden storage space allows to put some small objects, keeping cleanly of living space.



Fig. 9 The creation of the cookie chair

4. The one wardrobe

Through the storage of clothes, we found that some users would hang the daily used clothes in a prominent area, while the intimate clothes were hidden in the cabinet.

Through the storage method of the room clothes, it was found that some users would hang the commonly used clothes in a prominent area, while the intimate clothes were hidden in the cabinet. This design uses an interesting grafting concept to coat the hangers and cabinets. The engagement is provided to provide a closer way of the user's storage of the clothes. However, such a joint concept is more simplified and easier to combine than a general wardrobe, and is also lighter in weight.



Fig. 10 The creation of the one wardrobe

5. The twins locker chair

The twins locker chair was found by the experience of visiting guests, they usually put their backpacks beside them, but sometimes they have no place. Therefore, the design connects the two grid box irregularly, leaving a space for the guests to place items. This projects not only provides the use of the chair, but also can be used as a place for common books and personal belongings, thereby improving the space efficiency.



Fig. 11 The creation of the twins locker chair

6. The cabinet seat

The design replaces the storage cabinet with the seat structure, provides the use of the chair and stool to put books and personal belongings, thereby improving the space efficiency. And it also has the characteristics of stacking lockers, it is an interesting concept similar to multi-grafting of plants.



Fig. 12 The creation of the cabinet seat

7. The tray bench

In the front yard, we often see that the elderly have the habit of sitting outdoors, they talk and diet. However, the general bench always needs a leisure table or difficulty of maintaining. This design grafts the bench with the simply tray provides the placement and make easier to eat and rest.



Fig. 13 The creation of the tray bench

IV. CONCLUSION

In the process of creation, we found through the habits of lifestyle and the observation of the environment, combination of the related associations of these objects to meet the demand, re-integrated to create products that are more in line with modern needs. In grafting, it is easy to have a certain understanding of the existing object structure for, and make consumers lose their sense of freshness, therefore, the most important thing for the designer is to observe the interaction between human and environmental objects, and then find out the related elements, it will be able to construct diverse products.

Through the examination of the model of the grafting method, it is determined that the creations can indeed satisfy the concept of “grafting”, and also break the performance of existing products. The study integrated the following results: 1. The “Grafting furniture design method” is conducive to breaking through the traditional way, which is more creativity and efficiency. 2. Through the association of ideas and experience memory, to construct the ideal product style. 3.

Improve the functionality and volume of furniture design, to solve the problem of insufficient home space. 4. By means of a multi-component “aggregation”, can cause visual conflicts and also an innovative design performance. 5. More efficiency for design, enhance product added value and provide a new model of the design method.

The concept of “grafting method” aims to hope designers can extract appropriate elements through the interaction of living environment and experience, and reconstruct a more ideal form. This design method hopes to bring a new inspiration to the designer. However, the design target is not limited to the application of furniture. In the future, it also hopes to provide reference for various industries in product design and development.

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