

Research on the coffee cabinet design based on the shadow observation method

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ABSTRACT: Based on the shadow observation method, author analyzes some problems when user makes coffee: items are too scattered to be effective for user. At the same time, according to the used frequency of each items, author analyzes the relationship among the items placed in the coffee cabinet, to make it more consistent with the needs of humanity to improve the users' experience. At last, author offers the advices to product design to certificate that reasonably research method is important and feasible.

INTRODUCTION

In order to design a successful product, designers need to use the scientific method. Nowadays, the product design is with the bionic method, association method, user demand survey method etc. However, there are many design methods for different products. In some products, designer should follow the principle of the shadow observation method to do design research, so as to scientifically analyze the real needs of users. [1]

Overviews

The concept of shadow observation

The shadow observation method is in a certain period to observe the individual or a small group. The researchers are as the shadows from the study object to start working at that moment, until they finish the work and back home. Shadow observation method requires a series of consecutive or non-consecutive days of research. [2]

The significance of the shadow observation method

Through shadow observation method, researchers can ask relevant questions that related to human behavior, complete continuous problems. Recording the time and content, to observe the body language and mood. At the end of the shadow observation, the researchers will get rich and deep data. These research data can then provide valuable insights for other qualitative data in the same way, and construct a detailed design overview.

Attention to the shadow observation method

In the implementation of the shadow observation method, the following points are worth attention: 1, prior preparation.2, record your research content.3, as far as possible to record.4, every day to collate the research diary habits.5, manage your data.

Around the user to observe and understand their day of travel, interactive activities and activities background. For example, following the driver's activity, in order to understand how to use the instrument to detect the driver's sleeping when they are driving the car.



Figure 1: Follow the truck driver with shadow observation method to research the driver's sleep monitor

Examples of design methods in design

Choice of design method

In order to design a coffee cabinet that the user real need. We made a series of interviews for multiple users, but many users are given the answer is not their real needs, such as the need to sense of luxury, taste and so on. Therefore, the shadow observation method is very necessary, by observing the user's behavior, to judge the real needs.

Implementation of the shadow observation method

Through on the visits of a plurality of freshly ground coffee machine user, and observed the process of making the guests coffee, every piece of goods during this period was recorded and summarized as below:

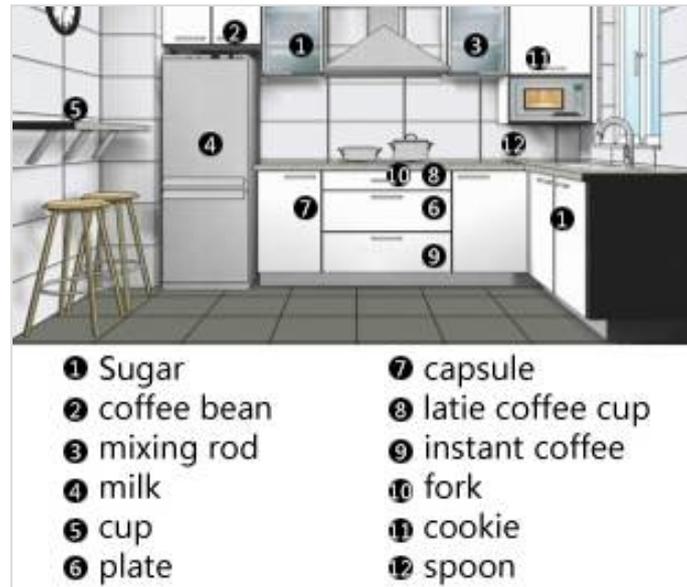


Figure 2. The shadow observation observed by making a cup of coffee needed items



Figure 3. Location map of mark in the position of the items
By mark in the position of the above items, get a location map as shown in Figure 3.

From the figure 2 we can see user making a cup of coffee used in three or more items, and when the coffee beans are exhausted, users may need to use the items reach six or seven. And once such a situation occurs, it will cause a variety complex work. According to the survey of several users, the following figure is the user's activity trajectory.

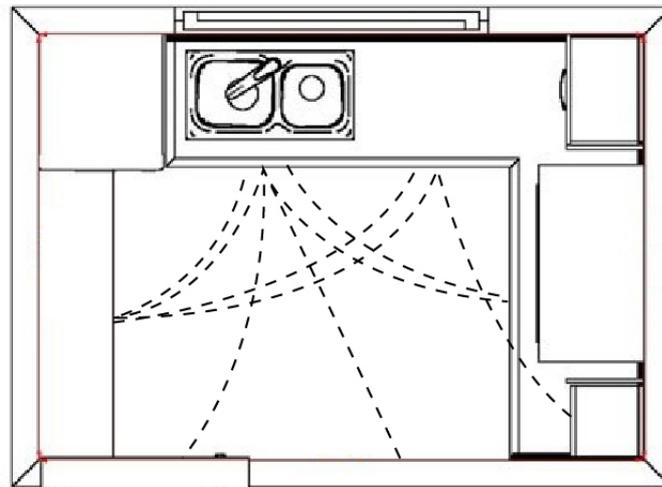


Figure 4. Users make coffee, because the lack of raw materials to repeat the route. From the figure can be seen, when the user in the absence of a material, because of repeated fetching material during repetitive movements, resulting in the user in the production of coffee produced a poor user experience.

Through above verified by the shadow observation, can be summed up that coffee making raw materials should possible resource intensive, rather than simply placed dispersedly, so in the production of coffee, resource intensive can greatly reduce the user's repeated work, so as to improve the user experience.

At the same time, the whole process of observing the user making coffee, recording the frequency of each item. After analyzed and sorted, we get the table 1. As shown below.

Table 1. Summary of the frequency of the use of the coffee making material.

Items	Number of items		Use frequency	
	unit	quantity	each	total
sugar	pcs	2-6	0.86	0.90
coffee bean	*	≈1	0.42	0.40
mixing rod	pcs	3	0.98	0.99
milk	cup	2-7	0.65	0.70
cups	pcs	3	0.99	1.00
plates	pcs	3	0.99	1.00
coffee machine	pcs	1	0.99	1.00
capsule	pcs	0-3	0.95	0.95
latie coffee cup	pcs	0-3	0.50	0.50
instant coffee	pcs	0-3	0.50	0.50
forks	pcs	3	0.45	0.45
cookies	pcs	≈10	0.65	0.70
spoons	pcs	3	0.50	0.50

*The data on the basis of the total number of 3 people when making Coffee.

Through the above table, it is concluded that cups, coffee machine, plates, mixing rod, the frequency of use is almost 1. These items due to the existence of a higher frequency of use, so when coffee cabinets in the design, priority placement of these objects.

Conclusions of the shadow observation method

By analyzing the data of the shadow observation method, the following conclusions are as follows. First, in coffee production needed items should be placed centrally, adhere to intensive principle to make the coffee in the late, reducing user in fetching objects in back and forth the distance, can save more time and effort. So, it can be imagined, only a large capacity of the coffee cabinet can be perfect to solve the problem of the scattered placement of coffee production.

In addition, using frequency is not the same for each item, when carries on the design to the special coffee cabinet to the special coffee cabinet goods' spatial layout to take scientific division, namely the high frequency items should be intensive in the user more accessible, and the frequency of using lower coffee beans etc., should for the terminal position of the storage space, so that it can reasonable arrangement of space, achieve efficient centralized concept. [3]

Design practice under the shadow observation method

According to the user research summary, all of the production of coffee required should be placed in an intensive cabinet. Only in this way can make users convenient to take all coffee needed items, may looks like figure 5.

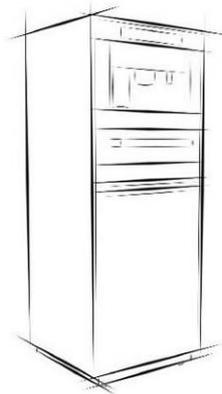


Figure 5: Intensive coffee cabinets can be integrated into a large number of items. At the same time, in the design a coffee cabinet, at the top of the coffee cabinet should be an embedded coffee machine. And the use of the frequency of the specific items should and its corresponding cabinet convenient user fetching is proportional to the degree. That is, the more easily for fetching articles and height should be corresponding to the use of high frequency items. According to Table 1 and Figure 5 can draw the corresponding relationship as shown in figure 6.

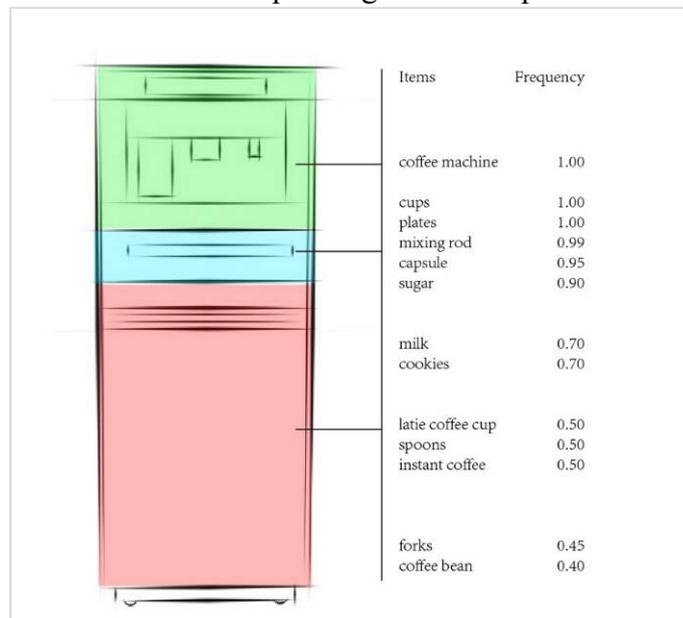


Figure 6: Item position according to frequency.

The design of the coffee cabinet is completed and summarized

According to the conclusion of the shadow observation method, after the final design and perfection, the design of the coffee cabinet is completed as shown in figure 7.



Figure 7: The completed coffee cabinet.

After the production, this product has won the highest China Industrial Design Award - China

Red Star Award, which fully affirmed the success of this product, which designed by shadow observation method. The final product is as showed in figure 8.



Figure 8: The coffee cabinet won the China Red Star Award

Made in China is to make a change, but Chinese product innovation and design should be better. And a good product should be by the scientific research method to find the user's needs. Shadow observation method of product design is particularly important, can get the perfect user experience, still need to in-depth design research, especially like the shadow observation method of this kind of scientific research method is the powerful guarantee of a good product.

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