

Applying Matterology in Internet Product Design

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Abstract. The article is exploring the relationships between Chinese Internet product display and the needs of Chinese users by the design research methodology named Matterology. There is a new way for designers, only six steps of Matterology, to find out some creative methods of Internet product design.

Keywords: Matterology · User experience · Internet product design · Design psychology

1 Introduction

Matterology is a kind of design research methodology created by Liu Guanzhong, who is the professor of Tsinghua University. Matterology is a useful theory for designers, in areas such as graphic design, industrial design, and even environmental design, to clarify their minds and perceive the essence from clear and creative thinking. In recent years, the rapid development of information technology has changed the way of obtaining information and service. All walks of life are inseparable from the Internet, which is the reason why Internet products are emerging all the time. Therefore Internet product design, which is a newborn design area, becomes the focus of attention. This article will help Internet product designers to understand matterology and find out a new way to create life-changing Internet products.

2 Design Models of Matterology

2.1 Evolution Principles of History

Throughout history of creation, there is a positive correlation between the developments of created objects and human desires. Take hunting for example. Primitive men would be able to prey on the weak by fist and teeth, but might lose their lives when encountering fierce animals. With the evolution, human had learned to hit animals by rough objects like stones, branches and wooden sticks to avoid injury, but still were easily attacked by wild beasts. And then, for protecting better, human would tie a stone in front of a wooden stick, and created the first tools named stone axe and stone hammer. By using the principle of elastic potential energy, human combined their own strength and elastic force of objects to create bows and arrows, so they would be able to

kill prey from far away. During the Iron Age, the material iron was widely used. Human decorated iron tools with plants patterns or totem. Tools were more durable and beautiful. Until Firearms Age, guns and cannons had taken place of bows, arrows and catapults.

There is something could be seen from the evolution of hunting tools. Human desires have been developing. They killed prey for survival at first, and then they wanted to prey without hurt, even improved the efficiency of catching prey. They decorated tools to express individuality. And with the development of technology, they designed much more efficient tools to work. At the same time, the evolution of created objects has been developing, from natural things, primary processed products, to complex processed products, decorated objects, and finally efficient and practical products with technical innovation.

Matterology created by Professor Liu Guanzhong has summarize the relationships in the evolution of product design and the interaction among environment, human emotion and product appearance: human emotion and desires improve the development and the perfection of product appearance (Fig. 1).

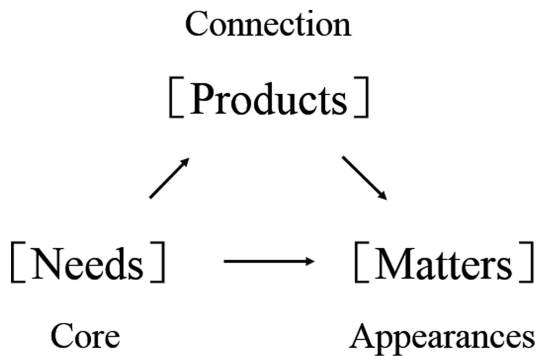


Fig. 1. Basic model of Matterology

2.2 Relationships Between Emotion and Internet Product Display in China

From the example of hunting, we can see that the evolution of human emotion coincides with the Maslow-Need-hierarchy theory: levels of need are physical, security, social, self-esteem, and self-fulfilment. Similar to the theory, the rules and the development of Internet product display in China are related to human needs (Fig. 2).

The products of the first level satisfy basic biological and psychological needs, such as those products about searching, e-mail, takeaway food, and travel. Those products are necessary for everyone and closely related with everyday life, so they will be frequently used for quite a long time. The representatives are Baidu Search, Taobao, Baidu Takeaway, Ctrip Travel.

The products of the second level satisfy emotional appeal. Family and friends need to care for each other at any time and anywhere by communication. With the

Matters	Clothing	Food	Communication	Art	Contribution	Exploration
	Accommodation	Transportation	Date / Party	Singing / Dancing	Competition	Research
	Money	Learning	Sex	Family / Lover / Friends	Game	Conquest
Needs	Living		Emotion	Entertainment	Respect	Transcendence
Products	Taobao	Dianping.com	QQ / WeChat	Music / Video / Picture	We Media - Weibo	?
	Ctrip Travel	Didi	Momo / Dating sites	News / Karaoke	UGC - Zhihu	
	Baidu	Alipay		Aircraft War Game	Blog - Tieba	

Fig. 2. Relationships between emotion and internet product display in China

development of the Internet, products about communication like QQ, WeChat, and kinds of dating apps emerging in recent years like Momo, are being used for high frequency and long time.

The products of the third level satisfy demand of entertainment. People would like to live a happier life, appreciate better tastes, and relax themselves more. Content products and entertainment products, such as products of news, pictures, videos, games, are belonging to this level.

The products of the fourth level satisfy the need of self-esteem and respects from society. After the satisfaction of survival, emotion and entertainment, people attempt to get social recognition. Interest-oriented products like Tieba, Zhihu, Douban, can assemble people who have similar tastes. Users can contribute their knowledge to gain more recognition from particular circles and themselves.

And the final level is to satisfy the need of self-transcendence. This kind of products hasn't been found until now. It will be the next direction in the future.

Living standards are improving and technology is developing. Internet products are also developing from satisfying physical needs to get love and entertainment, and many products help people to gain recognition have achieved success. In the next three years, the amount of products in the second level to the fourth level will make a rapid growth.

3 Design Methods of Matterology

3.1 Six Steps to Apply Matterology

As emotion promotes the development of products, the emotional appeal behind behaviors should be properly read and turned into the power of products. There are six steps for designers to apply Matterology into Internet product design.

First, Observation. Observe users' behavior in the whole environment carefully, including different roles, contexts, motives, action, language, and capture motions like eye contact and shiver. Sort out these observations, and then they will be the behavior data.

Second, Analysis. Base on the behavior data, designers must analyze the emotional goals behind every users' behaviors: for survival, emotional bonding, or respect. Read the hidden emotional appeals from the data.

Third, Conclusion. Make a conclusion in depth after understanding users' behavior and emotion. Designers need to solve and improve the pain points, and make them as design goals.

Fourth, Divergence. When having a definite design goal, designers need to analyze competing products, make brainstorming in group discussions and try out kinds of design plans, to design creatively and calculate reasonably by scientific methods, until finding the most effective and most sensible solution.

Fifth, Creation. After determining the final plan, more departments such as development, operation, marketing, are involved into the plan, to create and promote the product. The design plan will finally turn to a practical product.

Sixth, Evaluation. Launching does not mean the end of the product but the beginning. Feedback and comments will be received. Data of function and experience will be collected by use tests. All above will upgrade the product better.

3.2 WeChat Lucky Money: Thinking and Practice

When WeChat designs one of Chinese characteristic articles Lucky Money, it applies Matterology by six steps.

Fist, designers need to observe the scenes when people use lucky money. For example, to wish elders and children for health and happy in festivals, to encourage employees to work hard in the next year, to be sorry for someone's lose, are the most familiar ones.

Then designers should analyze and conclude the pain points behind sending luck money. People have their own purpose to send luck money, but there is only one pain point: it is a hard time to decide the particular amount of lucky money. Chinese society has its way of doing things. People receiving more money will make them under pressure, on the other side, they will feel upset when they get less money. And also, there are no fresh words for sending lucky money every year. So the next step is to transfer the pain point into the Internet and choose the proper scenes. The Internet has the spatial scale effect, which can eliminate the influence of distance. And there is no size limitation for sending lucky money at the same time. So WeChat Lucky Money has its unique advantages for the scenes such as boss to employees or star to fans.

When having determined the scenes and the pain points, it is the time to discuss the topic "How to send lucky money without losing face" carefully. Through brainstorming, the product is combined with game mechanics about entertainment and

randomness. At last, WeChat Lucky Money has several interesting functions, like random lucky money for happy new year, group lucky money, happy new year money from stars, and so on. People can use lucky money politely and even gracefully. Because the simple and interesting design, everyone can give best wishes to their friends with the best cost-controlled solution. Therefore many users activate the function in payment by WeChat Lucky Money and at the same time the number of WeChat Lucky Money users is increasing. Of course, the feedback received from marketing is beyond the imagination of designers (Fig. 3).

Simple Interface and Easy Usage



Fig. 3. Interface of WeChat Lucky Money

4 Design Applications of Matterology: Weather APPs

Let us see the applications of Matterology in other Internet products, such as weather APPs, and find out how they apply the six steps - observation, analysis, conclusion, divergence, creation, and evaluation - into the product design:

Observation and Analysis. There is a natural link between weather and everyone's life. Every day when we wake up in the morning, the first thing is to observe the weather condition to decide which kinds of clothes to wear. Cool clothes are worn in hot days and umbrella is prepared for rainy days. If we plan to have a trip at the weekend, we should read the weather forecast in the following days to make the proper arrangement. Weather is a kind of guide books for life, whether we plan to wash cars, do sports, wear a dust mask, have a barbecue, or not. Those above are the basic needs for living. We tend to protect ourselves from rains, freezing air and other bad weathers, so we need accurate weather forecast to help us.

If we continue to make a deep observation, we will find some other interesting things occurs. When we have to live apart from parents or lover, weather is usually the most familiar topic between us. "I heard it snows these days there. Be carefully to drive, honey." "Bundle yourself up before you go outside, or you will be catch a cold in such freezing weather." If there is a long geographic distance between parents and children, lovers, or friends, weather is a good topic to show concern for or take care of

family and friends. This is the second level of emotional needs. We need to care about who we love, and on the other hand, we need to receive their love messages too. So we need to know the weather in their cities.

There are some special situations as well. The weather condition is not good in China these years. The pollution of fog and haze is a big problem in cities like Beijing. When a clear blue sky appears, many people will take a picture of the fine weather and show it in the Moments of WeChat. They have a strong desire to express the feeling of having an incredible nice day. It is the same reason that someone meet special weather like aurora, rainbow and tornado, they will share their happiness of discovery to others. This is the third level of needs, which is self-esteem and respects from society (Fig. 4).

Matters

- When I wake up in the morning, I choose the proper clothes depending on the weather.
- Today is Wednesday. I plan to have a trip at the weekend, so I want to know the weather in advance.
- After I see the weather, I can decide to wash my car, or wear a dust mask.
- Mother asked me: "Is it cold in Beijing? Dress warmly to head off a cold." Parents are more concerned the weather in Beijing.
- When I phoned my girlfriend, I would ask her about the weather there recently.
- How a clear blue sky! It is the first snow this year! I will show it in my circle of friends.
- Today is rainy. I am in a bad mood. I will write a few words in my microblog.

Desire

- Living**
I don't want to be cold or get wet in the outside.
- Emotion**
I care about someone I love.
- Respect**
I want to express my feelings.

Fig. 4. The link between people and weather

Conclusion. Based on the observation and analysis, if we try to make a weather APP, we will focus three key points to solve problems. First, the weather forecast should be accurate and help people to make a decision. Second, the APP should allow users to know the weather of cities their loved ones live in. Third, people could use the APP to express themselves if possible (Fig. 5).

Divergence, Creation, and Evaluation. Now we can make the functional design on the basis of users' needs. When designing the weather APP, we should define the layout with satisfying the needs from level to level. First, users could see today's weather condition, especially the next few hours. Next, they would be given some suggestions to make quick decisions, like dresses, car wash and sports. Also they could see the weather going to be like in the following days to make a short-term plan easily. Then they could select other cities to show their concern to their loved ones. So some

Products

Provide accurate weather forecast:

- Provide weather report as accurate as possible.
- Forecast today's weather as well as that in the next few days.
- It is better to forecast the weather in the next six hours.
- Provide some other information related with weather.
-

Be an accurate weather APP.

Allow to know particular cities' weather:

- If apart from parents, know the weather conditions there as well.
- If friends or lover lives in another place, know the weather conditions there as well.
- Inform users and send love message when weather changes.
-

Design a function to care for beloveds.

Combine weather with emotion:

- Recommend sad songs in the rainy days and delightful melodies in the sunny days.
- Show the pictures of peculiar weather and get a view of other places.
-

Put some social elements in the weather APP

Fig. 5. Key points to satisfy users' needs in weather APPs

intimate functions should be design, such as automatic weather reminder of particular cities. As well, weather could be one of the social elements. For example, different kinds of weather could have their own unique reminder music; there would be an individual activity list according to the different weather; and users could communicate with different people from different cities in different weather conditions.

There are several popular weather APPs in China. We can find that their product functional design is in basic agreement with Matterology, that satisfying users' different levels of needs and promoting the user experience of products step by step (Figs. 6, 7 and 8).



Fig. 6. Interface of MoWeather

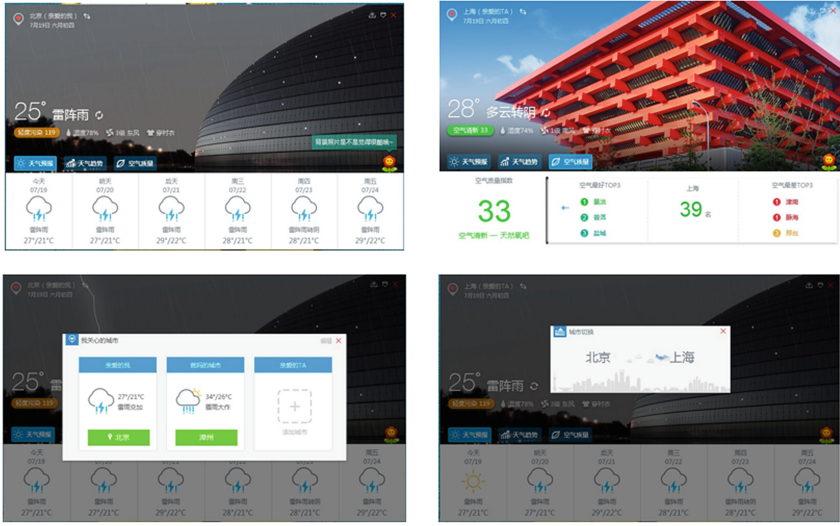


Fig. 7. Interface of Kingsoft weather

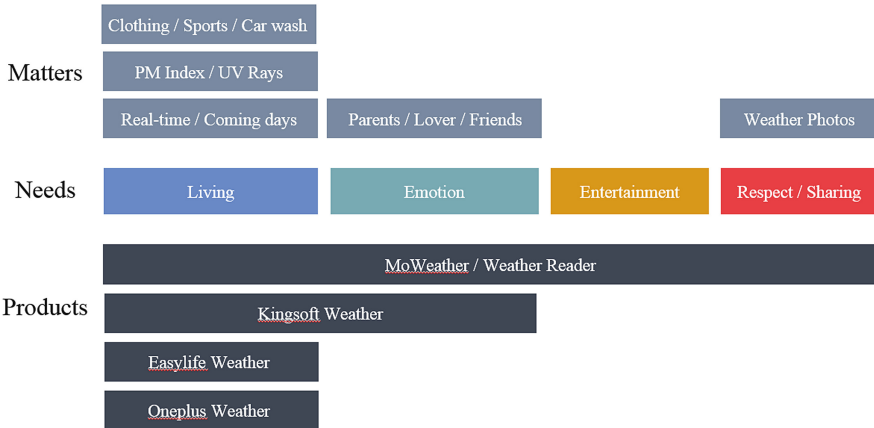


Fig. 8. Weather products to satisfy users' needs

5 Summary

Get a thorough understanding of products about weather, university students and other outstanding Internet product design, it can be found that those getting good word-of-mouth ones have applied the six steps precisely: deep observing, pain points analyzing, concluding and focusing, designing and diverging, rapid creating, and finally evaluating and upgrading. Hoping that Matterology could be used by more designers and product managers to create more and better products.

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