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RESEARCH FOR HUMANITY TECHNOLOGY AND PHYSIOLOGY INFLUENCE FACTORS IN PRODUCT STYLING DESIGN

Xie ZhiBin^a, Shi Lei^b

^a Faculty of Engineering Ningbo University,

^b Faculty of Art Design Beijing Institute of Technology

ABSTRACT

This paper uses method of multi-subject synthetic study. Many kinds of limited conditions to product styling design were researched. It discovered product had made lots of relationships of observation, using, sentimental exchange, research, collection with human. Product also made relationships with politic social environment, economical environment, market environment, natural resource environment, technical environment, cultural environment. Product styling design is based on human vision rule and product intrinsic special function, observes principle of vision and psychological of gestalt and Berlyne rules, limited by technical manufacture level, facing request of ergonomics and product semantics, examined by fashion symbol in business environment, needs cultural connotation to promote product value, and needs product identity design to carry on standard operation to product system.

Keywords: *product styling design, vision rule, design limited condition, gestalt rules, Berlyne rules*

^{*} Ningbo 315211, China xiezhbin@nbu.edu.cn

Beijing 10086, China leishi@bit.edu.cn

1. INTRODUCTION

Designer can entrust product with obvious external form. This product external form with visual attraction created by designer is product styling. Although product styling has relationship more or less with internal function, many companies think it can increase additional value by the way which does not need to change function instead of making styling. Today society has already achieved mutual recognition of some kinds of product appearance styling is more important than function.

Product had made lots of relationships of observation, using, sentimental exchange, research, collection with human. Product also made relationships with politic social environment, economical environment, market environment, natural resource environment, technical environment, cultural environment.

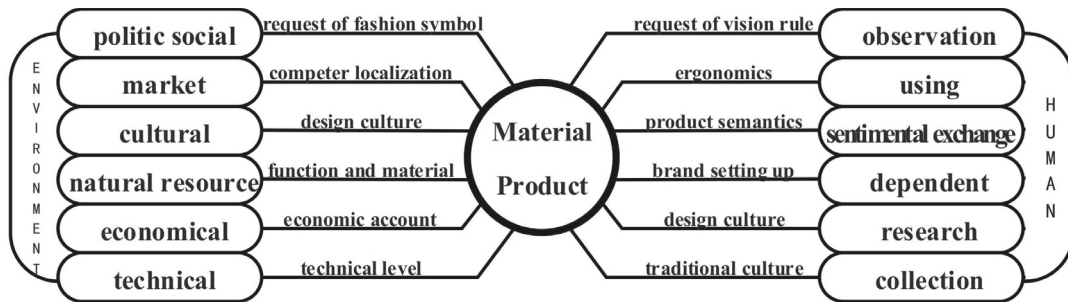


Figure 1: System consisted of product, human and environment

2. INFLUENCE OF HUMAN'S VISUAL SYSTEM TO PRODUCT STYLING DESIGN

Product styling is more related with human's visual characteristic. It is necessary to explore scientific rule and esthetic rule of human's vision system in order to apply it in product styling.

2.1. Influence from visual characteristic of view situation as a whole to product styling

Light enters human's eye and stimulates optic nerve to make up visual signal. Brain always wants quickly to seek rule and characteristic to chaotic visual signal. Brain can translate visual signal into some kinds of vision image pattern according to memory and experience, and relates each kind of pattern fragment together to form overall impression. In vision consciousness people has deeper impression to repeat identical shape than redundant irregular shape. And psychological feeling is more comfortable. Style is judgment based on visual overall impression. Human scans visual shape as a whole according to memory, View situation as a whole is one of human's visual characteristic.

The reason of human likes some proportions inborn is human's special vision system. For instance the ratio of 1:0.618. In ancient time people had not realized to scientific nature and inevitability of the proportion, people carried on artistic creation only according to intuition. The overall ratio of these works approached the ratio of 1:0.618. Actually this is because total length and height proportion of visional range of human's two eyes approaches the ratio of 1:0.618. When people are working on artistic creation, this kind of subconscious judgment to the proportion can make unconscious effect. So proportions of massive artistic work like architecture, sculpture, paint approach to the ratio. The reason of human is partial to the ratio of 1: 0.618 is because of human's special vision system. [1]

2.2. Influence from visual characteristic of pay attention to detail to product styling

Function of visual system is more important to human's survival. Human needs enough ability of eyesight localization to catch natural enemy in the field. Catching prey in jungle, human first scanned whole jungle environment, then searched special details such as mobile target, different color and shape. Then they localized and aimed to these details. This process is judgment process of looking around from whole to details. Visual characteristic of pay attention to detail is the second rule. Human's eyes were induced pressure factor for living in judging beauty and ugly.

2.3. Influence from visual characteristic of special expression judgment to product styling

In environment of living with similar, human must be able to know similar different subtle faces and their different subtle expression. Even they can distinguish the meaning of similar body language in order to live harmoniously. This kind of judgment ability to subtle expression is the third human's vision characteristic. Designer can design different face's expression according to product's different function and localization.

3. GESTALT RULES

3.1. Principles of gestalt rules

Gestalt rules think human's vision system pre-posit what they saw. When people look at image, brain can extract some kinds of fragment according to memory to combine new image. People always attempt to image it with meaning. Combining image is a kind of ability. People can distinguish main body and background. The most representative rule of gestalt rules is symmetrical rule. People have astonishing ability to distinguish symmetrical visual image. But they are weak to distinguish complex and irregular shape. People also have very strong identification ability to regular pattern shape.

3.2. Succinct principles for product styling design

The most important instruction of gestalt rules is succinct principle for product styling design. Design according to gestalt rules can cause simplism styling.

4. INFLUENCE FROM BERLYNE PRINCIPLE

Berlyne's research results mainly include following four points:

- Main decision factor for attraction of product styling is not product's primitive complex factor; in fact it is a complex factor which is observed by viewer.
- In product's attraction aspect, complexity and familiar can change with time lapse.

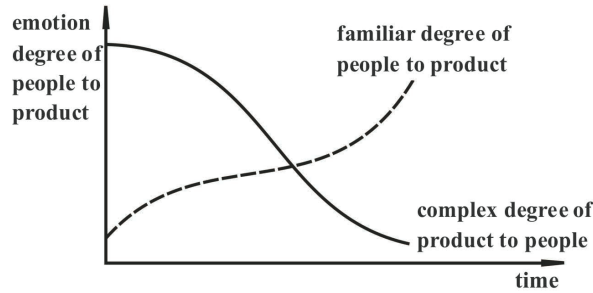


Figure 2: Familiar degree of people to product, complex degree of product to people changes along with time

Designer should neutralize product's complexity and familiar to make product have more attraction. Product's styling is too simple to make attraction with less interest. But styling is too complex to arouse human's sympathetic feeling and reduce attraction because of too strange. Making people feel familiar to the product is decided by its symbolic meaning which viewer understands to the product.

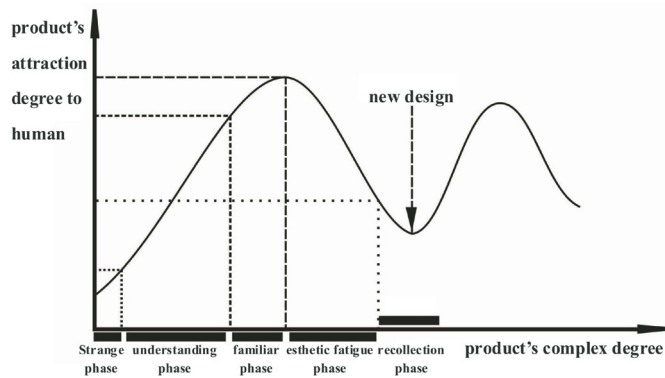


Figure 3: Relationship of product's complex degree and its attraction to human

- Product should be interesting before it is considered attracting.
- The important factor which decides product's familiar degree is product's symbolic meaning.

Product's symbolic meaning means not only its styling symbolizes its intrinsic function, but also symbolizes user's status characteristic. Product's symbolic meaning makes people classify it before know of product. Product should have fashion and modern feeling. Symbolic

meaning of product styling should be appraised before manufacture in order to avoid causing people has bad association.⁴

5. INFLUENCE OF LIMITED TECHNICAL MANUFACTURE LEVEL

Science and technology is affecting human's life seriously. Now social majority people believe in mysterious strength of science and technology.⁴ Technical strength also is reflected by product external styling. For instance adoration to aerodynamics technical force applied on airplane caused streamline style being in flood. Lots of static products used this kind of style. It is not aerodynamics request, but is because of adoration psychology to the strength of aerodynamic science and technology.

6. INFLUENCE OF STRONG TREND BRAND CULTURE

6.1. Comparing of strong and weak trend culture

Different cultural background can cause completely different styling design. Traditional culture usually has deficient vigor because of ancient. Traditional culture should face reality realistically, reject its dregs, absorb essence of strong trend culture positively, place itself above world culture stage, dare to promote and demonstrate itself.

In product design and corporation identity design, strong trend brand culture must be set up and promoted. brand image should be reserved enough, reasonable physical space. Designer should grasp and comply with political, economical, cultural and sport situation, use the tidal current and prevailing custom accurately, apply the related important information into product styling and corporation identity design to make product and enterprise have cultural and political connotation, and to promote quickly brand effect and product additional value. Reasons of strong trend culture can grow strong unceasingly on the one hand is innovating unceasingly, on the other hand is that it pays great attention to protection of its own traditional culture connotation. [4]

6.2. Unified platform brand strategy and branch brand strategy

Product design faces two kinds of strategy choices of thorough innovation and respect tradition. One procedure is completely get rid of any original design trace to create one kind of all new design to attack market. The other one is to respect relatively loyal consumer to retain part styling factors of original product, or to maintain product identical style.

Some companies carry out unified platform strategy named product identity plan. Such strategy emphasizes group combat to make all product styling unitize tendency extremely. Personalized characteristic becomes weak. When carrying out product identity plan, Monotonous and tasteless of product styling should be avoided because of too unification. It is easy to make consumer's psychology feel tired. Appropriate procedure is not only unify and strengthen vivid characteristic of company product, but also unify product's characteristic to change appropriately and deal with relationship of product brand characteristic essential factor and product special function essential factor flexibly to make them harmonized.

The other companies carry out various branch brand strategy. Subsidiary company has itself independent calculation system and marketing system. Each company can do its best and share resource and technology with parent company. The strategy of defeat market in details and total control can make product's variety become extremely rich. Different products have completely different styling characteristics. Individuality characteristic is extremely obvious. This kind of strategy is better to fit different consumer's different need. [5]

7. INSTRUCTION OF PRODUCT INTRINSIC SPECIAL FUNCTION TO PRODUCT STYLING DESIGN

Product function and styling is frequently correlated. Different product has each kind of different special function. Product styling should strongly express special function. Their intrinsic function is seriously affecting product external skeleton form. In fact product attractive external styling and internal fine performance are two independent and connecting matters.

When consumer purchases product, they often have no sufficient time to understand thoroughly product details with many kinds of functions. They often judge product functional quality and using conveniences according to intuition of exterior styling. [6]In this critical moment, designer must grasp the opportunity to use knowledge of product semantics to design carefully to attract consumer's attention to facilitate consumer's purchasing behavior occur. Product semantics requests product styling should powerfully and accurately reflect product intrinsic function and operating ways and steps. Product overall style and details should be able to reflect product holding, push or glide ways and so on.

8. REQUEST OF ERGONOMICS TO PRODUCT DESIGN

All products need human to operate. Operation function contains many movements of revolving, push, foot pedal, move and so on. Each kind of product function is completed by these simple operation movements. These function targets are showed by display equipment. These parts completing these operation function and display function also inevitably constitute product external form. Firstly product styling should be identified, then feeling comfortableness to product, distinctness in visual, operation simplicity, and rationality in operation flow should be designed carefully. It requests product styling should be soft and gentle and have curved surface suitably. Functional display equipment should demonstrate clearly. Operation of pressing key should be safe and convenient. [7]

9. EXAMPLE ANALYSIS

9.1. Product designed

Cosmetology series product design (electrical razor, air blower, fabric razor, electrical shaver, nose shaver, eyelash shaver, nail rub knife and so on)

9.2. Design method

- Whole style control

Because special characteristic of Trueman® product and long cultivating to the brand, Trueman® product should give people hard and strong feeling in whole style. And because product operation comfortable is requested in human work efficiency, this requests product have the characteristic of soft and curved surface styling inevitably. Therefore the product inevitably is integrated soft factor. In the product identity, designer established post-modernism style which unifies modernism style of 60~70% hard and strong main feeling with 30~40% soft streamline style.

- Design technique

The product special functional structure should be taken as creative foundation. From this foundation designer develops special. This kind of style characteristic can make up hard and soft styling naturally and reasonably in product. Simultaneously it can reflect product internal structure and function. Request of product styling and function can be realized by the most direct, reasonable, and economical way.

9.3. Design limited conditions

The product design must pay great attention to the overall characteristic and detail's characteristic, product special expression symbol meaning, using the succinct principle under instruction of gestalt rules, using Berlyne principle, the limit of manufacture technique, synthesizing unify platform brand strategy and varies branch brand strategy, basing in product intrinsic special function, satisfying ergonomics request to carry on the creativity design.

9.4. Design proposals



Figure 4: Trueman® products styling design

10. CONCLUSIONS

Product styling design involves multi-disciplinary such as anatomy, ergonomics, product semantics, kansei engineering and so on. Product styling design needs to be researched from multiple perspectives.

In system consisted of product, human and environment, product makes lots of relationships of observation, using, sentimental exchange, research, collection with human. Product also makes relationships with politic social environment, economical environment, market environment, natural resource environment, technical environment, cultural environment. These relationships constituted to product styling design limited conditions. Product styling is restricted by many factors. Product styling design is based on human evolutionary special vision rule, observes gestalt rules and Berlyne rules, always cannot leave restriction of product intrinsic special function, limited by technical manufacture level, facing request of ergonomics and product semantics. It is examined by fashion symbol in business environment, needs cultural connotation to promote product value, and needs product identity design to carry on standard operation to product system.

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