The Inspiration of "Hot and Cold Media" Theory to Flat Style Design

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Abstract
With the rapid development of the Internet, simple flat style arises at the right moment and is widely used. However, flat style is criticized for its homogeneity and difficulty in understanding. Flat design, as one of the design methods, is a communication medium to improve the efficiency of communication. Based on McLuhan's "hot and cold medium" theory, this paper analyzes the characteristics of flat design style. Flat design should properly combine the characteristics of skeuomorphic style; Enhance flattening participation; To improve the efficiency of understanding and promote the scientific development of flat design.

Keywords
Flat style; Cool; McLuhan; Design method

Introduction

With the rapid development of Internet, The design of mobile devices such as "phone, computer, tablet" tends to be flat. However, the expression of flat style is too cold and its design is too single, content homogeneity serious problems, such as for UI design is not limited to design style but spread itself should also refer to external factors. Therefore, this article will be written by McLuhan "understanding media: an extension of the theory of man" in the "cool and hot" theory as the basis, from the theoretical level to clarify the relationship between design and media, by comparing the relationship between"hot and cold" media and flatter design style then materialized design style, design solve flattening problems, find the improvement of the development trend of scientific and effective path.

The Theory of "Cold Media" Inspires the Design Style

The "Hot and Cold Medium" Theory

About how McLuhan Understood Media in his book, he greatly expanded the concept of media. In addition to defining media such as paper, books and television, he also defined media as things like clocks and cars that affect human activities or activity results (Marshall & He, 2000). McLuhan believes that everything in the world with technology can be regarded as a medium in essence. Based on this concept of media, McLuhan divides all media into "cold media" and "hot media".

In view of the difference between hot and cold media, McLuhan believes that the "clarity" of media leads to "psychological participation". Media such as newspapers, photos, cartoons, television and radio can be divided into "cold media" and "hot media" according to the audience's participation. Take photos and comics for example, the "high definition" of photos does not require excessive participation or imagination to obtain the content of photos, which is called "hot media". On the contrary, comics require people to participate in imagination and association, with low clarity, so they are the representatives of "cold media". However, there are some paradoxes in this theory, which have been criticized by scholars. For example, McLuhan classified silent films as hot media, while sound films, which are easier to understand and less participative, were defined as cold media. Therefore, the theory has been constantly iterating and changing in the process of the development of The Times.

In the book 'Mass Communication Theory': Paraforms and Genres, Professor Liu Hai Long, a communication scholar, redefined McLuhan's criteria for distinguishing hot and cold media. Liu Hai Long believes that the basic benchmark for distinguishing hot and cold media is "participation", "clarity" is only an extended judgment standard. Whether the media is "cold" or "hot" can be judged by the degree of participation of people's senses required by the media, as well as the extra energy and degree of thinking required by the media (Liu, 2008). In this way, let's take "radio" and "film" as an example. Radio only requires the participants to participate in the sense of hearing, while film requires "vision" and "hearing". Therefore, film is a hot medium, while radio is a cold medium. Radio requires media users to think, is more influenced by the environment and less stable, and requires more energy than watching movies (Liang, 2020). By this standard, radio is still a cold medium and film is a hot medium.

Flat Design and Skeuomorphic Design

As a new trend of design, flat design has been widely concerned by people, its trend can be said to be in the heyday. Flat style minimally uses points, lines and planes to design, emphasizing the functionality of interface design, weakening the decoration to highlight the main information, so that the content can be presented more directly, and users can have a better interactive experience (Lv

& Sun, 2018). In interaction design, flat design abandons all styles of 3D effect, such as projection, gradient, texture, emergence, shadow and highlight, so that the boundary of all elements looks clean and neat, which is a fresh and free from vulgarity.

On the contrary, the skeuomorphic design style adopts texture, material and other means to design objective things that can be seen in life, so that the effect is more vivid and users can quickly recognize. For example, the icon design of Iphone. Figure 1 The left side is a quasi-materialized design style. Its APP images refer to the appearance of real objects in real life. The camera function makes the product affinity stronger by restoring the camera lens, and the limitations of the demoomorphic style are relatively strong. The design cost is high and the efficiency of transmission is slow in the Internet era (Li & Hu, 2018). Now more and more enterprises are applying the flat style in the design. The right side of Figure 1 is a flat design style. The camera function gives up the design techniques such as texture and shadow, and simply Outlines the product.

In the past, when the popularity of intelligent products was not high, skeuomorphic design built a platform for the public to guide and transition, so that people could have a better understanding between reality and virtual world. However, with the popularization of all kinds of intelligent terminals, skeuomorphism no longer needs to be used to help the public to understand and obtain information. When information needs more attention from users in the interactive interface, the old sense of purely decorative design and skeuomorphic design will bring visual fatigue to users to some extent, so it is bound to gradually weaken. Flat design aims to strengthen the content so that the information can be further compressed in the process of transmission, and the content can be presented to users more intuitively. After this innovation, the home page of iPhone presents simple and smooth features, and reduces the modification of 3D effects and simulation effects such as shadows, highlights, textures, etc.



Figure 1. iOS 6.0 and iOS 7.0

Flattening and Cold Media

Through flat and skeuomorphic design styles, cold media and hot media can be distinguished. Skeuomorphic design focuses on restoring the real form of products and presents an image and realistic effect through design means. Compared with flat design, skeuomorphic design requires lower user participation and is a hot medium. Flat design is presented by simple outline and has a relatively uniform style, but it requires users to participate in the association. For example, the logo of Apple iOS7.0 system comparison picture and album function is no longer the real picture of flowers in iOS6.0 system, but the abstract appearance of flowers after processing, which requires users to associate and think. Compared with the skeuomorphic design style, the flat design style has a higher degree of participation and is a cold medium.

Flat design in the interactive interface with simple and lively graphic language, bright colors and eye-catching sans serif font to simplify the complexity, reduce the cognitive barriers of users, so that users can accurately grasp the content to master. Flat design conveys the design concept of "less is more" since postmodernism period. How to reduce users' cognition and learning costs to improve users' experience in the process of using products is the core issue that every designer must pay attention to in the era of rapid development of the Internet, whether it is the application of flat style in the process of visual presentation or the whole process of interaction design.

Flattening Follows the Trend of Cold Media Development

Flat Design has Strong Expansibility

The skeuomorphism depicts the objective things in real life, which has affinity, but its limitations are also obvious. According to Capacity Limits of Memory, the average size of a human Memory is either 7+2 or 7-2 chunks, and the Memory mechanism is different from the task but the total size remains the same. For example, children born after 2000 have little or no contact with your tapes, mobile phones, red and white computers and other products. It is also difficult for the sub-audience to understand the content of the product through the simulamographical design.

Flat design is another racetrack of design style. It uses basic simple graphics and color elements to distinguish features that help users focus on the content itself. It is characterized by freshness and cleanliness, and attaches importance to the relationship between hierarchy and information in the design. Reduce the middle level of the layout and flatten the content.

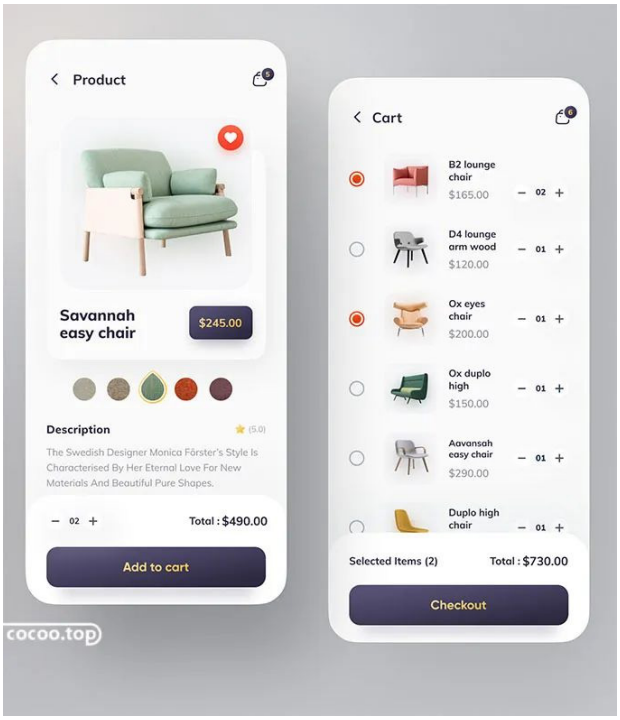


Figure 2. Flat design hierarchy diagram

With the rapid development of the Internet, 5G technology is also advancing into our daily life. Ten years ago, it was difficult to take a taxi, but Uber and Didi Chuxing solved this problem. Five years ago, instant food was mainly instant noodles, but now you can fill your stomach with products like Ele Me and Meituan take-out without leaving home. The main purpose of the design is to help us solve the problems in life. Design involves changing aspects, and flat design conforms to the principle of expansion in design. When product iteration and new functions are born, flat design can better show product functions.

Flat Design Inspires Deep Understanding

Flat design style is abstract, and users need to think more when browsing products with flat design style. Compared with skeuomorphic, such media have higher participation and "heat" (Yang, 2016). For users, skeuomorphic design presents objective things one by one, makes users accept them unilaterally, and reduces the interaction between designs. To Figure 3 HP company LOGO as an example, the original HP company LOGO for the company abbreviation symbol, lowercase "H" in "P" color collocation balance memorable, and the new HP computer LOGO is more flat, for 4 scattered have sent the inclined symbol, formed the "HP" brand logo. From the color to the layout are extremely simplified changes, the four slashes are clear at a 13 degree Angle, representing the core corporate culture of the company optimistic, positive towards the new progress of human beings.



Figure 3. HP Logo

Limitations of Flat Style

Style Homogenization

Some designers point out that flattness is more of a 2D display, while skeuomorphism uses shadow, texture and other means to give users a 3D experience. Take Figure 4 for example, the change of Google icon in recent years, although the icon looks fresher and more harmonious, there is no lack of personality. At present, more companies tend to flat design, so that flat design is gradually "routine", and the UI design between companies can not be distinguished from the characteristics and advantages and disadvantages. Such a design gradually makes users aesthetic fatigue, and it is difficult to participate in it, reducing the sense of media participation. Whether it is ICONS, web pages or all kinds of products can be improved from the basic elements of design. Designers can optimize the design content from the aspects of font, color, typesetting and interactive behavior, so as to make the content more harmonious and produce features.

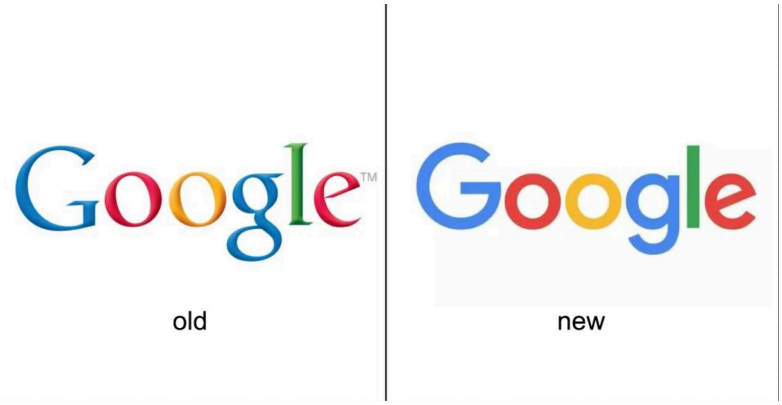


Figure 4. Logo of Google Company

Difficult to Catch Key Points

Flat design does not mean that there is no design decoration effect, in the actual design, the designer should be based on the design concept, the characteristics of the service object and the problem

to solve the flexible use of flat style. Flat design style pursues simple design, from element collocation to overall layout as simple and extreme as possible, but this minimalist style will also cause the focus of product content to be ignored. Figure 5 and Figure 6 Kate Meyer's eye movement experiment has proved that this problem, Kate Meyer from the Internet of electronic commerce, travel, accommodation and so on six kinds of industry of nine champions, site analysis, research, and invited more than 71 Internet users of two versions of the web page in the site use, two versions of the web respectively improved version (not flat) and lightweight version (flat), improved version of interaction design will focus on content make more visual impact. In the experimental process, the user is allowed to read related tasks, such as finding the order button on the web page, etc., and the eye-tracker is used to record the time and path. The results showed that the light design page took 22% more time to find the target than the enhanced version, and the light users had trouble focusing on the key content.

This experiment reveals a big problem with flat design, where the extremely simplified style makes it difficult to highlight the important content. Flat design style can actually be improved from the aspects of color and design means (Yao, 2015). For example, change the color of the key content, and highlight the key content so that users can get the content in as short a time as possible. In addition, the proper use of shadows can emphasize the relationship between interface distribution and enhance the sense of hierarchy. The font size selection is also where the flat style can be improved. In flat design, the 3D effect is abandoned, but the emphasis can be added in the font size selection, the emphasis on typesetting will enlarge the core content, and the modification content will be indented, and other means can also solve the problem.

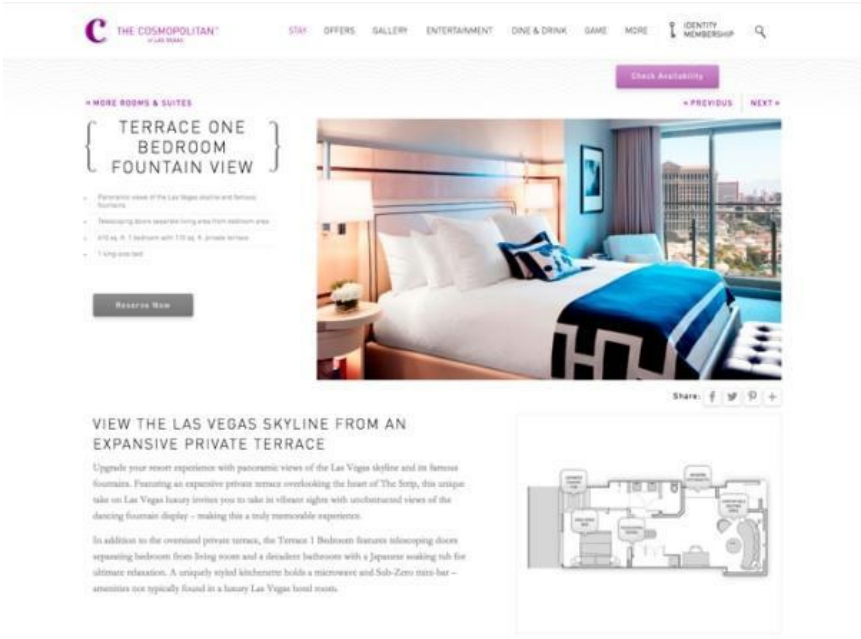


Figure 5. Enhanced version design

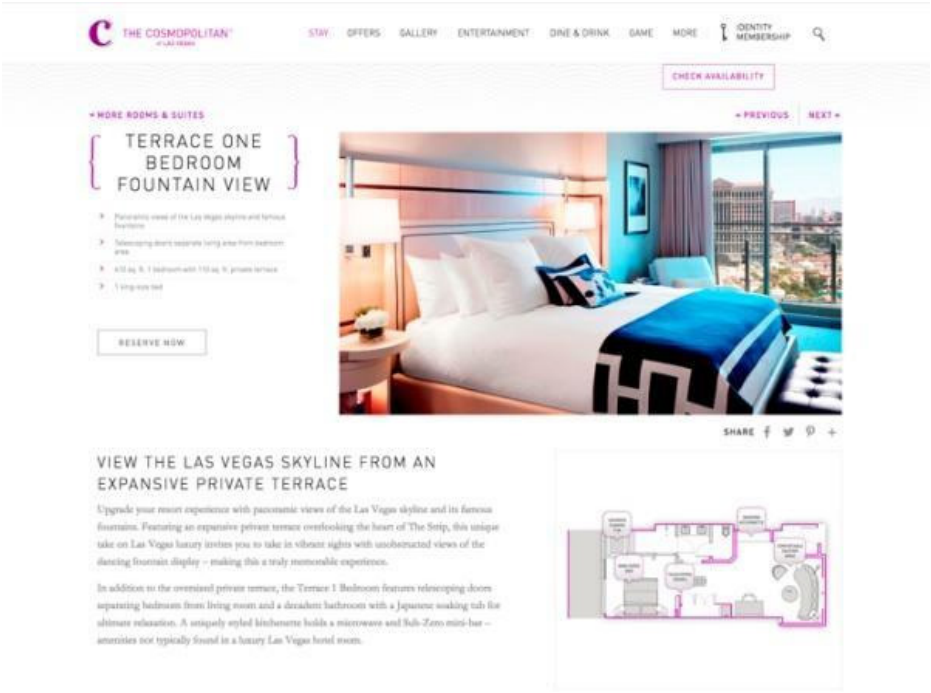


Figure 6. Lightweight design

Lack of Hierarchy

Flat design has become a popular "star" in the design field. Microsoft took the lead in giving up the popular transparent style "Aero" and adopting the "Metro" style to remove interference and decoration and adopt large color blocks and flat typesetting. However, simple flat design will cause difficulties for users to understand. The purpose of simple design is to reduce the design cost and understanding cost, while too simple content may be difficult to understand, produce miscellaneous association problems, and will cause visual problems such as weak sense of product content hierarchy.

This problem can be improve by "half flat design", the designers have gradually found that pure flat or quasi materialized design barriers between each other, then flat 2.0 arises at the historic moment, to give up the 3D effect in the flat style, reduce redundant decorate, on the basis of utilizing the means such as subtle shadows, highlights, layer in the design depth of ascension in the UI design make the product more vivid and understandable. Flat design 2.0 also makes the corresponding sacrifice of cleverly exploiting the advantages of skeuomorphism while maintaining visual simplicity.

For example, Google product "Material Design" APP adheres to simplicity first, cleverly uses color matching to highlight the key points and uses the feature of semi-flat to increase its sense of hierarchy. Designers make a choice and integration between skeuomorphic and flat, which is an innovation of design.

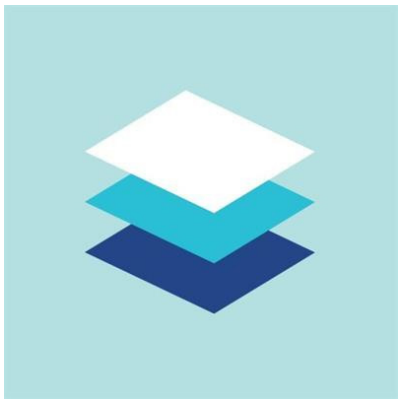


Figure 7. "Material Design" APP

Conclusion

Flat design conforms to the concept of "cool" in the communication, the user wants to gain flattening style content need to do more thinking and association, this not only adds to the flat design of expanding and interesting, also make flat out straight to materialized, flat can be obtained according to the user think deeper content (Zhang, 2011). However, although flattening plays a certain role in design, it is only a process in UI design. At present, the semi-flattening and three-dimensional flattening trend is more powerful, and flattening does not mean abandoning all the characteristics of skeuomorphism, but should be mutually "sublated". On the other hand, mimicry design uses minimization design and light skeuomorphic design, and uses non-texturing methods to make users look new. Problems such as homogeneity and unclear hierarchy existing in flat design are alleviated in the environment of mimicry design, and mimicry design may become the next design trend.

The essence of design is about the concept of the man-made objects and planning, the purpose of design is to solve the problems in the society, flat design for more clear and efficient content, quasi materialized design content has a temperature, there's a difference, mimicry design small and exquisite, this article discussed and not think of a design style can sweep design, but by using the theories of McLuhan's media to discuss the more possibility of flat design, and put forward scientific development path and the future development trend of flat design.

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