Analysis of Visual Experience of Network Interaction Design
Based on Cognitive Psychology

XunXun Jiang*, KaiDi Han
Jilin Animation Institute, Arts and technology, Changchun, China, 130000

*Corresponding author e-mail: 383980339@qq.com

Abstract. Web2.0 has led to the common age of the Internet. Users not only passively read information online, but also actively become information producers. Therefore, humanization has become an increasingly important topic in network interface design. Whether the design of the web interfaces is consistent with the cognitive characteristics of the user, and whether it is conducive to the organization and processing of the consciousness, will affect the effectiveness, efficiency and satisfaction of the user interface. This article explores the relationship between designers and users through literature and case analysis, starting from cognitive psychology. Through analysis of a series of psychological activities such as perception, the goal of humanizing the web interface is finally achieved. Cognitive psychology is an effective means to improve the level of web interface design in the Web2.0 era. Learning and research on it can promote the construction of user-friendly web sites that are easy to use and loved by users.

Keywords: Humanization, Cognitive Psychology, Perception, Web Interface Design

1. Introduction
The concept of interface design was first proposed in Western countries, and it has existed for a long time[1]. Today, it has developed a set of mature theoretical and practical experience.[2] For example, Alan Cooper, the inventor of VisualBasic and the master of software interface design, put forward the three dimensions of interaction design, namely form, meaning and behavior, in the book "Revolution of Software Concepts-The Essence of Interactive Design". In the first half of the 20th century, designers focused on form, and later designers gradually focused on connotation. This trend continues to this day. The original research in design psychology abroad found that people used computers, large machines, and monitors and other difficult-to-operate controllers to make mistakes.

Today interface designers continue to focus on content, including the design of available content. Foreign research on network interface design has been at the forefront of this research. Since the
1990s, usability has also been widely used in network design, and it has gradually developed into its own professional field-network usability. The continuous development of network usability research has gradually made usability a solid academic foundation on its testing, assessment scale, and design principles. How to make the web interface interactively influence and support human goals and expectations has become a subject worthy of attention. Based on this, the interface design masters also put forward many other principles that can guide the design of web interfaces.[3] Alan Cooper's book "Interaction Design Roads-Let High-Tech Products Return to Humanity" focuses on the user's visual experience and the simplification of interactive thinking. The well-known American psychologist and computer scientist Norman recently proposed that it is better for beautiful objects to use. This relationship between usability and emotion mentions usability and emotion as necessary interrelated design factors.

2. Web Interface and Web Interface Design

From a human-machine interface perspective, the Internet can be understood as an abstract interface between the knowledge of one user and other users. The website is a new information dissemination tool. It does not change the nature of information generation, but only uses a new channel for information transmission. A website is a product that stores information. Information is an intermediate medium for contacting providers and viewers or users. It is the rich information of the website that makes the Internet attractive. The provider of website information uses its own cognitive structure to convert knowledge into information that can be exchanged and stored in a network environment. Users obtain information for their own purposes in a specific cognitive environment, thereby transforming their own knowledge. However, the existence of a website is supported by a web interface. Therefore, interface design has become an important activity in the process of network information transmission.

![Figure 1](image_url)  
**Figure 1.** Comparison of the structure of netizens in 2017-2018 (blue:2017, yellow:2018)  
As can be seen from Figure 1, compared to 2007, the population of netizens with junior college education and above has further decreased, and the proportion of high school and junior high school education has continued to increase. The Internet is becoming more and more popular with low-education populations. Among non-student netizens, the proportion of netizens at junior high school level and below is significantly lower than the total number of netizens.
3. Analysis of the status and problems of network interface design

With the advent of the Web2.0 era, the transformation of Internet information aggregation has brought new era requirements to the design of web interfaces. The most important of these is to require the interface to be "simple, natural, friendly, convenient, and consistent." Therefore, humanization has become an increasingly important topic in interface design. Web2.0 originated from a brainstorming meeting between O’Reilly and MediaLive in March 2004. Dale Dougherty, vice president of O'Reilly, pointed out at the conference that, unlike the "crash" of the Internet, the Internet is more important than ever, and exciting new applications and websites are emerging with surprising regularity. He believes that the companies that survived the dotcom bubble have similar models, and the Internet is undergoing a new revolution. After analyzing these new technologies and new website models, Dale Dougherty and company president Tim O’Reilly creatively proposed the concept of Web2.0. In his published article, he gave a definition of ambiguous semantics: Web2.0 is the Internet as a cross-device platform, and its applications make full use of the inherent advantages of the platform. The software is delivered in a continuously updated service mode. The group contributes its own data and services, while allowing others to aggregate, in order to achieve more users and better services. Through this "participation architecture", a network effect is created that goes beyond the traditional technical content of web pages and triggers a rich user experience.[5] Since 2005, Web 2.0's attention has been increasing, and it has become a hot word on the Internet.

The interaction between individuals and media such as computers is essentially social and natural. Just like in real life, all rules come from the world of interpersonal communication, from research on how people interact with the real world, and they are applied to online media. Humanization is a positive interpersonal relationship.[6] It keeps this communication in a friendly, comfortable, natural, and consistent state, which is also what human-machine relationships want to pursue. In view of this, in order to achieve the desired effect of the information exchange between human and machine, we must consider not only the user's physical, psychological, and environmental factors, but also cultural, aesthetic, and emotional factors when designing.

![Figure 2. Thinking model](image)

A thinking model is a generalization of the way people think when operating a computer to improve the usability of the web interface. The interface design must be connected with the user's thinking mode. Generally, the user's thinking model includes social environment factors and user's knowledge. When operating the computer, the user's psychological composition factors mainly include perception, cognition, and action (Figure 2).

Perception refers to "perceptual factors of operation (visual, hearing, touch, etc.) and perceptual
processing processes. Users have perceptual expectations, perceptual predictions, and certain perceptual processes.” Perception mainly includes "various types of actions that users convert themselves into computer operations Thought process”. Action refers to the operation of the user's hand (and other parts of the human body). The user guides his entire behavioral process by thinking, and hand movements only play a role in execution and tactile perception. Therefore, when designing the interface, users should try their best not to be distracted by their hands, and be able to focus on the cognition, while the operation of their hands becomes unconscious follow-up. If the interface design is better, it can reduce the user's cognitive process to a certain extent, so that the user can directly associate perception with action.

4. Conclusions
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