

# Summarize the Application and Development of Psychology in the Subject of Design

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**Abstract:** *Design psychology is a branch of design science. It attempts to study design events, characters, products, and even history from a psychological perspective. In China, the research of design psychology is still a new topic, and the history of its research is not long in the world. Nowadays, design psychology has been greatly developed. It runs through the design process and provides a psychological perspective for stimulating creativity and producing excellent designs.*

**Keywords:** *human-computer interaction, usability engineering, design aesthetics, aesthetic psychology, sensory functions*

## 1. Human-Computer Interaction

### 1.1 Overview

"Interaction" is derived from the English "Interaction" and "Interactive", meaning is interaction and influence between the two, which is different from the original meaning of "mutual" or "alternate" in the Chinese dictionary.

Human-computer interaction is design science. It hopes to study humans and technology and complete interaction design some methods. Most of the core content of this interaction comes from methods, and interventions must also be carried out through technical design. Human-computer interaction is applied psychology and provides the possibility of psychology as a design science.

The design object of interaction design is human behavior. In interactive behavior, hardware and software are just media, tools, and means to achieve behavior. Interaction designers pay most attention to a good user experience, rather than the general physical properties of the product. People, actions, tools or media, purpose and scene constitute the five elements of interaction design.

### 1.2 Software psychology

Software psychology establishes a behavioral method that stimulates and guides system developers to consider human characteristics by understanding the use of software and hardware. There are two distinct approaches to software psychology. The first is the waterfall model, which decomposes from top to bottom and has a specified discrete sequence of stages, in which the design of infinite brushes has a huge effect on user stickiness. The second type assumes the two central roles of psychology: (a) produce a general description of the interaction between humans and systems and software, which can be integrated as a guide for developers; (b) when developing systems and software (or more generally after development) directly verify the usability of the system and software.

The original argument is that the basic axioms of software psychology are not perfect. Waterfall design is ineffective. It is only observed during execution, and for large, long-term projects, it is best viewed as Rough management tools. However, according to the status quo of domestic high-traffic apps, the waterfall model has achieved huge commercial benefits.

### 1.3 Availability

Usability engineering has three key concepts: First, it is suggested to manage iterative development according to clear and measurable goals, namely usability specifications. In the design review, a clear

commitment was made to achieve precise operational goals. Usability specifications play a standard role in HCI development.

The second key concept is to call for expanding the scope of design knowledge. And develop a lot of methods and technologies for users, many methods and technologies emphasize "low technology" to promote collaboration between users with expertise in working conditions and developers with expertise in technology. In "participatory design", users participate in setting design goals and planning prototypes, rather than participating only after the initial prototype exists.

The third key concept is cost-effectiveness. Many steps of initial design, verification, and iterative design consume a lot of resources. The development department needs effective methods and timely returns.

The early theme of human-computer interaction is to separate the user interface software from the application software and redesign the user interface in the user interface management system in a modular manner. The remaining work needs to coordinate design and development to facilitate the construction of rough prototypes. In order to ensure that the design can be realized, use and develop prototype tools, which can achieve previewable effects before development and reduce costs.

#### ***1.4 User-centered system design***

Early stage of interaction design, the design and development of computer systems and software did not seriously consider the idea that the needs, capabilities, and preferences of its end-users should be explicitly considered. After that, the computer industry and computer science disciplines changed. Build a user-centric development model, in which usability is the main goal. People are beginning to make a clear distinction between technology-driven exploratory development and current "real" system development, which is usually accompanied by a clear disclaimer about usability, in these systems, empirically proven usability is the ultimate arbiter.

#### ***1.5 Comprehensive regulations***

In 1990, Interactive research has been initially integrated into other disciplines such as computer science. In 1988, the Working Group of the Association of Computer Societies (ACM) listed HCI as one of the nine core areas of computer science. The joint curriculum working group of ACM and the Institute of Electrical and Electronics Engineers (IEEE) recommended that HCI be included as a common requirement in computer science programs, and HCI is listed as one of the ten main parts of the program.

## **2. The Pleasure Principle in Design**

### ***2.1 Overview***

For a long period, designers follow human-machine thinking and project the research focus on product usability research, focusing on factors such as safety, convenience, and comfort. However, from the perspective of the development of ergonomics itself, the status quo of product design in the process of enterprise product research and development, and the psychological characteristics of consumers, this kind of ergonomic design criteria has revealed its inability to adapt to people's new needs. A preliminary conclusion is reached through the analysis: usability-based human-machine research should continue to explore the product's pleasant functional design to better meet the needs of users and support the development of the product design industry.

The general principles of making the senses produce aesthetic pleasure: (1) the greatest effect of the smallest means; (2) the unity of multiple varieties; (3) the most advanced but acceptable; (4) the best match.

### ***2.2 Aesthetics***

"Aesthetics" is derived from Greek and refers to sensory perception and understanding of perceptual knowledge. In the 18th century, the philosopher Baumgarten chose the term and changed its meaning to the satisfaction of the senses or sensual pleasure. Since the creation of an artwork is to satisfy our feeling, concept for an artistic experience, Such as aesthetic judgment, attitude,

understanding, emotion and aesthetics. These are recognized by the public as aesthetic experience. Such as the aesthetics of life and natural experience, especially visual art.

Observers of artworks start from the Sentiment analysis of works, compare it with former memories, classify Work is more valuable, and then interpret and evaluate the work, thereby generating Aesthetic judgments and emotions. Only the previous stages are considered aesthetics. In these predominantly automatic stages of perception, our perception system manages to detect and evaluate the novelty and familiarity of the work. In these stages, we talk about sensory pleasure (or unpleasantness), After that, the experience has cognitive emotions. They are also part of the art experience, but they cannot be called aesthetics.

PAUL HECKERT recommends limiting the term "aesthetics" to sensory perception rather than the pleasure of anesthetics. Therefore, any form of experience (such as artwork, product, landscape, or event) contains an aesthetic part, but in general, experience is not aesthetic.

### ***2.3 Evolutionary aesthetics***

To study the source of aesthetic reactions, we must Check ourselves a seemingly A necessary but very simple question: Why are things liked by us? Once the question is expressed in terms of "why", we will eventually let ourselves to study the way humans have evolved. When thinking and behavior are involved, this is precisely what more and more thinkers in the psychology world are doing: Want to learn why we behave in our way Explain the evolutionary advantages of these behaviors for our species. Since Aesthetics seems to be behind, they pose a huge challenge for An expert in psychological research. Therefore, many of them have spent lots of attention showing the aesthetic thinking and our willingness to pursue artistic activities. Among all the ideas put forward by the predecessors, one of them has been widely adopted. It is called the "by-product" model, which uses the senses as the entrance to explain the aesthetic pleasure.

The concept of adaptation is the key to this hypothesis (actually all evolutionary thinking). Since the goal of human beings is to survive for reproduction, we face many adaptive problems. The solutions to these problems are sometimes beneficial to reproduction even at the farthest end, such as finding partners, avoiding predators, avoiding obstacles, and choosing nutritious foods. Or understand the psychology of others. In accordance with the methodology of natural selection, psychological mechanisms have been developed to accomplish this type of problem.

### ***2.4 Sensory adaptive function***

In short, they keep the flow of information in order. We make visual artworks and get pleasure by exposing ourselves to them because they do exactly that. The best and truest definition of art that has ever been put forward is "allowing chaos while maintaining consistency."

#### ***2.4.1 Visual system***

The most outstanding sensory system in perceptual research is also the most important form of our experience in the world. The important function of the vision system is to make us to sail the entire world without hitting objects or falling off cliffs. Therefore, sight enables us to find barrier, view part, and A, approximate distance;

#### ***2.4.2 Auditory system***

Auditory signals are the most important of our auditory system. Communicating further away is good for survival, such as, It allows us to remind others and work together. Many of the basic principles of visual organization or Gestalt's law represent our "best guesses" in ordering the flow of auditory information. Music also uses the principles of repetition, looping and similarity.

#### ***2.4.3 Tactile system***

The most critical way of feeling for survival may be our ability to touch or be touched. The most important thing is to feel pain and evaluate some potential dangers, and feel well, thereby motivating us to perform activities. But our senses and feelings also provide support for us to measure color, shape, weight, texture, temperature, verticality, stability, and many other physical characteristics. In particular, our feelings make us realize that we have a body, thus laying the foundation for our self-experience.

#### **2.4.4 Olfactory system**

Gas represents a person's physical condition and fertility status, so it plays a big role in sexual attraction. In short, we want to smell/taste things that can survive and reproduce. Scents are a rich source of connections, and therefore help us remember places and events in the past.

### **3. Aesthetic Psychology**

#### **3.1 Aesthetic psychology**

Looking at this topic from seven different perspectives, they are not mutually exclusive: diachronic, perception, thought, body, content, person, and situation. And can be combined into a unified theory of aesthetics.

As we all know, the symmetry and asymmetry of the object, the complexity, and simplicity, the novelty, and familiarity of the object, the proportion and composition, the design of the semantic content (as opposed to the formality of the object), and the importance of receiving only stimuli all affect the aesthetics Experience and judgment. Besides, a person's emotional state, degree of interest in stimulation, appeal to social status or economic benefits, education, history, culture, and the economic background will affect aesthetic judgments and other contextual aspects also play a role.

#### **3.2 Methodological issues**

The mainstream of psychological aesthetics is carried out through experimental or empirical methods. Therefore, it accepts and continues Fechner's original concept and methodology of "bottom-up aesthetics". These theories are in sharp contrast with psychological aesthetics, and they follow this tradition.

#### **3.3 Aesthetic psychological framework**

The seven perspective principles are time, experience, mind, body, content, person, and situation. Entity refers to the object of aesthetic processing, which can be things, creatures, events, landscapes, or environments.

Various aesthetic processes are affected by cultural and social processes. Therefore, it is necessary to consider the influence of culture, the influence of social roles and status, or cultural differences.

Biology contributes to our understanding of aesthetics. Especially in the past ten years, neuroscience has made tremendous progress. Our understanding of brain function has greatly increased. These achievements will also be used for aesthetic research. Integrating discoveries in cognitive neuroscience has also become more and more feasible.

The human point of view focuses on characteristics and specialties, and the systematic inspection of individual differences in the aesthetic processing is still to be carried out. Experts and non-experts, laymen, or novices have different abilities and skills. Experts have specific structured knowledge of the professional field, and the knowledge system shows varying degrees of complexity. These different cognitive systems in turn will lead to different aesthetic processes, such as combining the performance of experienced judges with naive or inexperienced groups Compare the performance of judge groups. There are also many documents based on personality structure research. In addition to considering individuals or groups, the cultural comparison is another important point of view.

Circumstances, the combination of a given time and a given location will affect the aesthetic treatment. The combination of content, personnel, and situation perspectives also comprehensively covers the subject of aesthetic processing.

#### **3.4 The Utopia of Psychological Aesthetics**

People can go further and envision a utopia for psycho-aesthetics. It is very possible to develop a discipline focused on applications. In such interdisciplinary research, all the above-mentioned art and science disciplines will integrate and contribute, and the ultimate goal will be to obtain a unified theory describing the psychological processing methods of aesthetics. To cope with this huge challenge, it is necessary to study the subject from the different perspectives introduced above, identify and extract the

psychological aspects and gradually integrate them. Nevertheless, a complicated theoretical structure may eventually emerge.

#### 4. Summarize

Psychology is struggling in the development of design disciplines. The dual perceptual characteristics of psychology and design have made the theories of design psychology continue to be created and overturned. Design psychology seems to be developing in an uncontrollable direction. It is rare that some methodologies have been recognized by the public and perform their practical functions. It is precise because of its uncertainty and complexity that design psychology is becoming more and more important.

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