



# Appropriateness of User Experience Design

Wei Yu, Yun Yang<sup>(✉)</sup>, and Yanan Ni

School of Art, Design and Media,  
East China University of Science and Technology,  
M. Box 286, No. 130, Meilong Road, Xuhui District, Shanghai 200237, China  
weiyu@ecust.edu.cn, Yyun66681@qq.com, 695097575@qq.com

**Abstract.** In the Internet era, though the user-centered design discipline plays a promoting role in modern design, the significance of user experience design is greatly overstated. It concerns the feeling of people carefully and tries to meet the physiological and psychological need of users. How can we keep the appropriateness of “people oriented”? Today we find ourselves in an ever more globalized world in economy and culture. Designers encounter the puzzle brought about by over-commercialization and over people oriented as well as human being’s evolution safety and the challenge of global ecological environment deterioration. As driven by commercial interests, over design is made to meet users’ demand without a bottom line, which makes users overindulges in and depends on the so-called people-oriented design in the depth of commercial interest first, over use of ecological resources and other design ethics questions. This paper tries to cooperate the appropriateness rule of the “people oriented” idea of design activities with the idea of Chinese traditional “harmony between the universe and humanity”, absorb nutrients from oriental culture and rethink professional ethics, social responsibility and environmental protection mission of designers, which has practical significance and theoretical value to help designers to handle the harmonious and sustainable development relation between humanity and true self, humanity and society system as well as humanity and nature.

**Keywords:** Design ethics · Oriental culture · People oriented

## 1 Brief Review on the Status of “People Oriented”

### 1.1 Design and Technology

According to Martin Heidegge (2004), modern science and technology has changed the moral relationship between people. Negative effects brought about to human civilization by technology have been realized by ethicists very early. Industrialization brings us the development of technology. The development of science and technology at the beginning tries to increase productivity for social production, and each device is with more functions to simplify our life. Nowadays, the development of virtual experience, artificial intelligence, big data cloud storage and other technologies makes technology either provide convenience for our life, or even give more capacities other than the instinct to us. We are in an intellectualized system net consisting of the computer

system, and instead of being controlled by people, the system “reacts upon us and layouts the natural world again in a big way” (2015). Technology influences our life style and way of thinking.

Questions brought about by technical improvement are also multidimensional. In the “Internet+” era, take-out will be delivered to our home and we only need to click the mobile phone screen slightly, which is obviously a typical service mode of “from cradle to tomb”. Such consumerism culture has no other meaning except accelerating the social rhythm and dispelling the funny of (eating) life. Another example is the “flow” concept (2017) advocated by today’s game design and virtual experience design, namely a kind of immersive experience, makes people indulge in the virtual world, prevent people from finding the entrance of true life and harm the body and heart.

We should think about the ethical relationship between design and technology, and we need to realize that human being cannot avoid the destiny to the technology world; while such technology force is still in further development, and nobody can avoid it. Technology can give empower design; as a designer, we should reflect on and think about the original design point and rethink and criticize design. We cannot let the force expansion of technology dispels the value of true life finally. We will not only provide what users want, but also provide an objective thinking environment based on their values and help users treat the world again by introducing a new angle of view through the article designed and take a new look at their own role and location around the application of the article designed (2012).

## 1.2 Excessive “People Oriented” Design

In the Internet era, the significance of user experience design is elevated to an all-time high. It concerns the feeling of people and tries to meet the physiological and psychological need of users. It stresses the ease of use, optimization and efficiency more in the human-computer interaction (HCI) to try to reduce the cognitive work of users when they face equipment. Such seemingly “people oriented” design thought has indeed increased the overall production efficiency during the application of users ostensibly, while it also causes immoderate reliance of users on technology. Thus, it weakens users’ cognitive and question solving capacity owned by them (2017). Today’s map navigation function is extremely convenient, the system will plan an optimal path for you, and you can arrive at your destination easily without taking your bearings and checking the guideboard during the whole process only by inputting the start point and end point. However, such accurate, specific and step-by-step assistance reduces the situational awareness of drivers greatly, namely, orientation cognition owned by people naturally and the capacity of mastering the road condition and instructions and remembering the route. It causes that more and more young people become obsessed with road, and they even can get lost without the help of navigation software on their way to work or back home.

Similarly, people’s calculative ability, ability to remember things and ability of listening, speaking, reading and writing are weaker and weaker due to the more and more considerable user experience. Scientific calculator software helps us calculate each bill in our life whenever and wherever possible; memorandum and reminder

software informs us of the plan of a day, a week even a whole year and reminds us at the time point set; spell check and automatic error correction software automatically correct our errors when we are tapping the keyboard. All these things make our memory of words be more and more indistinct.

Technology should take improving but not weakening the ability of people as the target because all of us do not want to be replaced by machines someday just as described in science fiction films. Therefore, instead of meeting people's greedy demands unconditionally, designers should clearly realize the finiteness and appropriateness of people oriented, concern negative effects (mainly immoderate reliance) of software caused to users during a long-term application and provide sustainable appropriate design responsibility with their boundless sense of design ethics when designing good user experience.

## **2 Reflection on the Status of Design Ethics and Focus on Chinese “Harmony Between the Universe and Humanity” Thought**

### **2.1 Reflection on the Status of Design Ethics**

As the growing global concern on irrational design, environmental pollution, resources waste brought by over design and other questions, how to lead rational consumption, green consumption of the whole society and regulate design rules through design becomes more and more appealing.

In traditional product design, taking mobile phone as an example, designers make the product be used for a long period by designing changeable modules, ruggedized shells, standardization of modules, extensible devices and other means. At this stage, the design mainly devotes itself to ensure the durability of products. As the increase of the product complexity, the design starts to concentrate on identifying and eliminating adverse factors that hinder the durable application of the product to ensure the reliability and the performance of easy to maintain of the product (2011). However, the product can still be discarded due to the “planned abolishment system” of manufacturers and the seeking new thought of consumers when the product has owned good characteristics and durability. Finally, it will cause high-entropy and high-carbon destroys to resources and ecology.

Moreover, in today's service economy age, products and services are basically binding consumption, and the concept of “product design” has also been expanded to “product service system design”. For “materialized products”, it commits itself to promote the usability and ease of use of products and make users of products acquire good experience. For the non-materialization trend of products, service and experience becomes a major issue. Therefore, to meet the experience satisfaction of users is throughout the whole process as the corresponding design strategy, while the design ethics is basically neglected or desalted.

The Internet thinking comes into being in the Internet era, which makes people attach importance to service and experience from design and manufacturing materialized products. Nevertheless, in the field of interface and interactive design, the

cognitive pattern changes rapidly as the advance in science and technology and the proposal of new views. It easily causes user fatigue even cognitive dissonance. Merchants and designers often regard in-depth entertainment and interest reveling as the potential pain spots of users and develop that continuously, the consequence of which is to cause that users, especially teenagers, enjoy it and cannot help themselves. It not only harms the physical and psychological health of teenagers extremely, but also causes more and more social and family questions.

## **2.2 Design Ethics in “Harmony Between the Universe and Humanity” Thought**

Use experience design means to promote the use experience of users on products, and it puts more emphasis on the thing that products or services should promote the spiritual satisfaction in non-material ways and display the design principle of “people oriented”. Today we find ourselves in an ever more globalized world in economy and culture. Designers face the challenge of multiple values conflict, and it cannot meet the design ethics questions of over design, business interest trap and others faced by design today to stick to the guidance of traditional western philosophy thought continuously. The paper indicates that the people oriented design implication and design method need to change along with the technology promotion and era development and master the development process of the people oriented design idea under the new trend. Therefore, the paper tries to combine modern design with traditional Chinese philosophical thought, absorb nutrients from oriental culture and rethink professional ethics and social responsibility, find the design “supreme good” target and regard the ethics value and property as one of the inherent characteristics of design, which has important practical significance to help designers to handle the harmonious and sustainable development relation between people and true self, people and society as well as people and nature.

### **2.2.1 Implication of “Harmony Between the Universe and Humanity” Thought**

“Harmony between the universe and humanity is a “nature – ethics” sense integrating the universe, human being and earth formed by ancient Chinese during the process for survival; it is one of the elementary propositions in Chinese traditional philosophy. As a kind of simple systematic perspective, this thought has very far-reaching influence on the handling of the Chinese traditional relation between humanity and true self, humanity and society as well as humanity and nature.

The universe-humanity thought is a significant thought that guides the most initiative element – “humanity” in the system consisting of humanity, nature and society to handle internal and external relationships. In the system, “universe” includes natural universe, social universe and transcendent universe; “harmony” expresses not only the accessibility between “humanity” and “universe”, but also the intimacy and integration between “humanity” and “universe”. Instead of meaning individual “persons”, “humanity” means a community with shared future for humanity and ecological fate that is restrained by natural law, social regulation and material basis and cooperates with

“universe”. Thus, the display of “harmony between the universe and humanity” implication should include:

- (1) On the plane of handling the relationship with nature: humanity is harmonious with nature through the rational cognition of natural law.
- (2) On the plane of handling the relationship with society: humanity should abide by social ethics standards to be close to natural law.
- (3) On the plane of handling true self: be simple and integrate harmony of soul through strengthening self-cultivation.

### **2.2.2 Rational Human-Based View in “Harmony Between the Universe and Humanity” Thought**

The people oriented or people-centered thought in the “harmony between the universe and humanity” thought is its quintessence. Man is the intelligent part of the universe, and people are valued in the universe. Though the Chinese universe-humanity thought admits the dominant role of people, it does not equal to the condition that people is in an absolute leading position. Behaviors of people are restrained by natural law, and people should achieve “following their hearts’ desire without overstepping the line”, namely, the quintessence – degree in the doctrine of the mean. It is absolutely not that people are the external subject in western culture, and the “universe” is an article that is conquered and transformed by people. Furthermore, instead of the exquisite egoists’ alienation human-based view of selfish, self-indulgence and desires for material welfare showed by western consumerism, the essence of “people oriented” thought is a kind of multi-win and intergrowth harmonious and moderate play of “mutual benefit between the universe and humanity” under the precondition of conforming to natural and social ethics. In case of conflicts between local interests and public interests, instead of resolving them in the destroy method of conflicts, we should communicate and coordinate actively and take the realization of life harmony and happiness of majority people to the hilt as the vision.

### **2.2.3 Natural Intergrowth in “Harmony Between the Universe and Humanity” Thought**

*Xici* states that “lead the natural changes in the nature of heaven and earth but not overdo, and carry all things but not be with missing”; Zhu Xi deems that “objects are animals and plants; love means proper use of resources. The “lead” and “use” has properly described the requirement of the universe-humanity thought on the role of people. “Lead” requires people to take the heaven and earth as the model and people as a natural ecological species, which actually takes the organic component links in the nature as the precondition and abides by natural law; “use” stresses that people should fulfill people’s creativity and fetch from the natural abstemiously based on climate and other natural phenomena and by using natural law fully.

In terms of handling the relationship between people and nature and how to fulfill the main body role of people in such relationship, the traditional Chinese universe-humanity through contains unique intelligence: we should realize the “intergrowth” between people and nature, and make them interact with each other and rely on each other in such thought. It emphasizes that people and environment is a unity of

opposite. People should follow the law and not violate human nature. Furthermore, it includes “kiss and Jen, Jen and the love of things”. Those propositions have the same goal with the sustainable design principle advocated by the current international society.

### **3 Life-Cycle Assessment Theory of User Experience Design Based on Oriental “Harmony Between the Universe and Humanity” Cultural View**

#### **3.1 Basic Thinking of Life-Cycle Assessment Theory of User Experience Design Based on Oriental Culture**

(1) Concern actual demands of users, and display the universal love human-centered spirit of “harmony between the universe and humanity”.

The paper reflects how to define the reasonable boundaries of the “people oriented” design through in use experience design and what its bottom line. The target pursued by design has turned to meet everlasting spirit consumption from meeting the basic function and moderate spiritual needs. The original “interest of the entire human race oriented” is gradually replaced by “self-centered”. The “people oriented” design should not be the supreme business rule that designers separate the common destiny of people and nature, society and ecology by designers, handle all things separately by taking people’s greed as the center, neglect or avoid ecological responsibility and social justice, take consumption stimulation as the kingly way and meet consumers excessively. Xunzi has said: “Fire and water possess a spirit but no life, grass and trees possess a life but no awareness, birds and animals possess awareness but no sense of morality, only humans possess spirit, life, awareness as well as the sense of morality, hence the noblest beings in the world”. Xunzi affirms the value of people from the evolution rule of natural universe and reveals the difference between people and nature. In the universe and people intergrowth and heaven and human mutual connection in the “harmony between the universe and humanity”, the position of the universe and people is not absolutely opposite. People has subjectivity in the process of changing the material universe, but they are no the dominant power. Designers should recognize their responsibility, understand users’ actual demands when researching and developing products and provide an objective thinking environment based on their values:

- A. Designers should research users’ psychology, value preference, functional requirement, cultural background and others and understand their actual demands.
- B. They should show the long-term influence of the product and service on users, instead of increasing users’ feeling of dependency and deteriorating their cognitive ability, which is helpful for designers to pay more attention to enhancing the cognitive ability of users with the product or service except considering the ease of use, probation and other elements.

(2) Follow natural law, balance “take” and “use”, and establish a wisdom of ecological ethics.

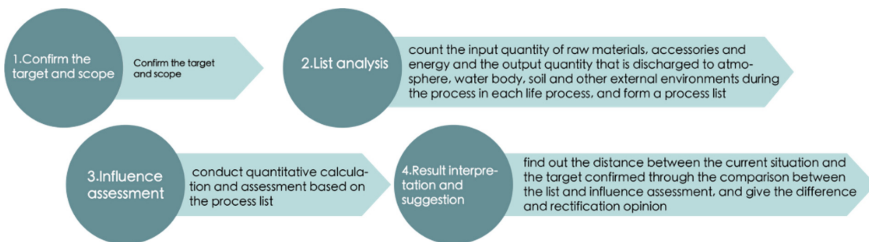
The innovation point of this paper is to dig the relationship between people and nature and how we can play the main body role of people in such relationship: we should establish the idea of “intergrowth” of people and nature, mutual interaction and interdependency and stress that people and environment is a unity of opposite. People should follow natural law, protect and make for all things, develop and use resources and technologies properly and adequately, place ecological protection factors and basic function realization at the same position from the angle of the life-cycle of products during the design process, consider the retrievability, low carbon, reutilization, detachability, ease of maintenance of materials and structures and conduct sustainable assessment of products and services.

## 3.2 Explore New Life-Cycle Life System of Product Design

### 3.2.1 LCA Life-Cycle Assessment Standard System

In domestic, a perfect life-cycle assessment standard is still lacked. This paper proposes a new life-cycle assessment system of user experience design based on the famous “LCA (Life-cycle Assessment)” standard. LCA is a programmatic report proposed by SETAC according to the major conclusion in an academic conference of Portugal in 1993 (2003). It is a method that can make quantitative analysis on the environmental influence of the whole process from raw material extraction, manufacturing, consumption, application, recycle to final abandoning of a product. LCA includes the following 4 steps (see Fig. 1):

- (1) Confirm the target and scope: define the target, life-cycle scope and system boundary of research.
- (2) List analysis: count the input quantity of raw materials, accessories and energy and the output quantity that is discharged to atmosphere, water body, soil and other external environments during the process in each life process, and form a process list.
- (3) Influence assessment: conduct quantitative calculation and assessment based on the process list.
- (4) Result interpretation and suggestion: find out the distance between the current situation and the target confirmed through the comparison between the list and influence assessment, and give the difference and rectification opinion.



**Fig. 1.** Life-cycle assessment

The assessment method can not only be used in the life cycle rating of actual products, but also be used in the comparison of the ecological influence of design schemes, which is beneficial for reducing ecological influences caused during the research and development of products as well as the later period from the source.

### 3.2.2 Explore New Life-Cycle Life System of Product Design

The paper supplements the qualitative analysis that should be owned in the service system on non-quantitative assessments lacked in LCA based on LCA and proposes WLCA (the Whole Life-cycle Assessment) (see Fig. 2). Its specific steps include:

- (1) Position the design target and scope accurately: it requires defining design target, life-cycle scope and system boundary for users' psychology, value preference, functional requirement, prediction on product or service, educational and cultural background, exploitativeness and implementation of design.
- (2) System analysis: dismantle the output quantity at each stage from research & development to product or service production, application, feedback (material design also includes waste recycle) and others, and form a list.
- (3) Influence assessment: Conduct quantitative (product design) or qualitative (service design) assessments based on the list, and consider the influence on environment, economy and society.
- (4) Result interpretation and suggestion: find out the distance between the current situation and the target confirmed through the comparison between the list and influence assessment, and give the difference and rectification opinion.



**Fig. 2.** The whole life-cycle assessment

Characteristics of the design life-cycle assessment in the paper is reflected in the promotion of attentions on users, which stresses the trace of post feedback of products or services, can propose qualitative analysis aiming at the current interactive design and virtual experience design, and perfects the assessment scope of LCA.

## 4 Conclusion

In this paper, it firstly introduces the Chinese “harmony between the universe and humanity” thought; the human-based view and the wisdom of ecological ethics contained in the thought have significant practical and far-reaching significance for



designers to handle the relationship between “humanity and true self, humanity and society system as well as humanity and nature”. On the basis, the paper develops the description of the current situation and thinking of “people oriented” design, expands to the wider experience design and service design from the narrow interactive design field and discusses the relationship of design, technology and sustainability as well as responsibilities that the society and designers should bear for design. Finally, in terms of the appropriateness principle of user experience design, it discusses a new life-cycle assessment system creatively, under the framework of which, it conducts quantitative or qualitative analysis on the attention on users and the trace and feedback of products and service, perfects or expands the existing assessment system of the user experience design.

## References

1. Heidegger, M.: Question concerning technology. In: Kaplan, D.M. (ed.) *Readings in the Philosophy of Technology*, pp. 35–51. Rowman & Littlefield Publishers, New York (2004)
2. Anthony Townsend (America), *Smart Cities*. China CITIC J. (2015)
3. Blevis, E., Preist, C., Schien, D., Ho, P.: Further connecting sustainable interaction design with sustainable digital infrastructure design. In: *LIMITS 2017*, Santa Barbara (2017)
4. Jiayu, W.: *Reflective Design Thought in Social Interaction Research* (2012)
5. Balasubramanian, G., Lee, H., Poon, K.W., Lim, W.-K., Yong, W.K.: Towards establishing design principles for balancing usability and maintaining cognitive abilities. In: Marcus, A., Wang, W. (eds.) *DUXU 2017*. LNCS, vol. 10288, pp. 3–18. Springer, Cham (2017). [https://doi.org/10.1007/978-3-319-58634-2\\_1](https://doi.org/10.1007/978-3-319-58634-2_1)
6. Shedroff, N.: Design is the problem: the future of design must be sustainable. *Tsinghua Univ. J.* (2011)
7. Tang, C., Wan, R.: *Analysis on Life-cycle List of Cotton Textiles*. Shanghai Textile Science & Technology (2003)