

Design Research on Maker Office Space Based on User Experience

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Abstract

The maker office space is a new type of office space that has gradually come into everyone's view since 2014 when the country put forward the concept of "Mass Entrepreneurship and Innovation". With the continuous development of the country, the era of experience economy comes, people no longer simply need the basic functions of space, but pay more attention to the experience. Therefore, this paper integrates user experience into the design of maker office space to find the demand of users. We analyze the design points of user experience in office space from various aspects, propose the design strategy of user experience in maker office space, and propose innovative thinking and inspiration for the design of maker office space in the future.

Keywords: *Maker Space, Office Space, User Experience, Atmosphere Creation*

1. MAKER OFFICE SPACE

The maker office space is not only an efficient virtual office space online, but also an offline office space that provides event space and hardware for people to work physically. In addition to studying the operation mode and operation strategy of the maker space, we also need to design and optimize the space environment and image display to bring people a good experience, so as to improve people's work efficiency and enhance the office level^[1].

2. THE TRANSFORMATION OF TRADITIONAL OFFICE SPACE TO MAKER OFFICE SPACE

The transformation of traditional office space to maker office space is roughly divided into four stages, the office from the very beginning with dependence and uncertainty to the mid to late 10th-18th century began to present the connection with the space, the relationship gradually tightened. Beginning in the 19th century until now, due to the tight land resources, office space was mostly too concentrated, and people could not have a comfortable office environment in office buildings, for example, and then starting in the 1960s, there was a transformation of office space to maker office space^[2].

2.1. Deficiencies of traditional office space

Due to the dramatic increase in productivity, the increase in the workforce, the high cost of land and the lack of resources in society, office space has been in a certain predicament

Single office environment. First, the traditional office space in the office form is a number of people crowded in a small space for office. Daqiao Nianchun use partitions to divide and segment the office population, a single space shape, the basic function is not complete, no matching rest space, leisure space, entertainment space, etc., cannot meet the psychological and physical needs of people in the limited office space.

Expensive land prices and poor sustainability. Office space is to a certain extent a business card that shows the corporate culture as well as the strength of the company. The development of the economy, social traditions, and the separation of office space from production space have all led to expensive land prices for office space. In addition, due to the high density of people, office space is seriously consumed, whether it is for capital cost savings resulting in less than healthy renovation materials, or daily overhead, which generates huge consumption and cannot achieve green sustainability.

Inability to motivate people. The office space is too centralized, resulting in a compact space that does not ensure reasonable interaction and communication between people, causing visual stress, anxiety, and concerns over privacy.

2.2. Features of maker office space

The maker office space is a space for entrepreneurs to interact, work and discuss and create^[3].

With the advancement of industrial reform and the rapid development of multimedia and networking, office space needs to be more open and flexible. The maker space is a new office model that features:

Focus on communication and sharing. The maker space is a place where innovative thinking is developed and a medium for makers to communicate and interact. Therefore, communication and office functions are mostly dominant in the space.

Open and free space. The maker space is a carrier of maker culture. The various functional parts of the space are open and form a whole, providing makers with a stress-free communication in any environment.

Flexible combination and planning. The space can be appropriately divided according to user demand, effectively reorganized and reasonably transformed to balance the state of the space. Or the space can be planned according to the theme of the space, reflecting the unique space characteristics as well as diversified functions.



Figure 1. Shanghai wework office

3. USER EXPERIENCE IN MAKER OFFICE SPACE

3.1 .Sensory experience

Sensory experience can be said to be the first feeling that people have when they enter a certain space. Human sensory experience will change with the change of spatial environment^[4]. As the subject of the space, the user's psychological activity as well as the stimulation of the external environment will influence the experiential behavior. Therefore, as a designer, it is important to be human-oriented and create the right experience for users based on human psychology.

In the design of maker office space, the office population pays more attention to the needs of the spirit, and users establish a close connection with the space through vision, smell, hearing, touch and feeling, and create a dialogue with the space, so that users can really perceive the space. For example, visual attention should be paid to the color rendering of space, the warmth and coolness of light, the expression of form, and the feeling brought by materials. In the auditory aspect, we should pay attention to the acoustic environment of the space, to avoid unnecessary interference of noise for the office population. In the tactile aspect, we should pay attention to the choice of materials and the temperature and humidity of the environment. In terms of smell, it is important to avoid the presence of irritating gases and control the smell in the air as well as gas wafting.

3.2 Behavioral experience

The core of the behavior experience of maker office space is the space function. It is necessary to accurately cognize the main body of space use, find the positioning of the space and the user demand for space, and provide users with humanized and diversified experience. Behavioral experience is the feeling of the user after interacting with the space, emphasizing the communication and interaction between people and space, so that users can get a satisfying and pleasant experience in the space no matter in office, dining, discussion, rest and other behaviors. Thus guiding users to actively participate in the behavioral experience and creating a unique impression of the space.

3.3 Emotional experience

Emotional experience can be said to be the most advanced experience in experience, which is a deeper user experience built on top of sensory experience^[5]. The behavioral experience and sensory experience have already brought psychological changes to users, then the emotional experience is to make users experience in the space through theme establishment, atmosphere creation and space arrangement. In the office space, it is necessary to create a quiet, harmonious space atmosphere, then in the scene does not need to be too ostentatious decoration and modeling, while in the casual communication area, the designer can create a relaxed and comfortable atmosphere for discussion, you can properly increase the unique shape and bright colors, or increase the flow of fun, etc.. In the space of different functions, different emotional symbols are established, and through the symbols, a dialogue is conducted with the users of the space to trigger the emotional resonance of the users.

4. DESIGN STRATEGIES FOR USER EXPERIENCE IN MAKER OFFICE SPACE

4.1. Sensory experience resonates with users

In terms of vision, the human eye is the first medium to perceive the world. In the maker office space, there are more factors that affect people's visual experience, the main factors are color, material, form and light.

First of all, color experience can intuitively affect people's psychological experience, different colors bring people different feelings^[6]. In the maker office space, the selection of colors should focus on the users of space, the nature of space use. But no matter what color is chosen, should avoid the space color too confusing, to unify the main color of the space, and reasonable with the color, to do the main priority, to create a comfortable and natural office environment. The choice of material, the ground often used materials are floor tiles, flooring, carpet. Wall materials are often chosen according to the theme and the atmosphere that needs to be created, and the visual properties of different materials all bring a different experience. In the form experience, the shape of the space will also make different associations, but the actual shape should be combined with the theme of the maker office space selected, then in the meeting as well as the office area, the rectangle with a stronger sense of stability and balance is needed to dominate. Light can be divided into natural light and artificial lighting. Natural light is the most common in creating the atmosphere of the office space, but also to bring the most comfortable light source for the human eye. Different office areas need different natural lighting, to ensure reasonable use of light, to avoid glare on the human eye damage, avoid direct light into the eyes. Artificial lighting is used as a supplement to natural light to further accent the space. In the office space, intermediate color light is needed to meet people's office demand, and in other areas, the warm and cold light color can be selected according to the function to create a different atmosphere.



Figure 2. Maker nest space

Auditory experience. Auditory sense is also one of the mediums through which people perceive things. In the design of maker office space, it is necessary to create a good sound environment. In the design of the office space acoustic environment, it is necessary to consider the size and shape of the space as well as the material, the choice of material is mainly through the

characteristics of the material, construction to reduce the impact of noise to the office population. In addition to noise reduction, music can also be used appropriately to bring out the atmosphere of the space, such as the sound of running water and soft music. Multi-level auditory experience will help users deepen the impression of the space.

Olfactory experience. The smell of different spaces also brings a fixed impression. In the office space, the smell of paper materials, the scent of plants, the aroma of coffee, and the smell of perfume can all stimulate the olfactory experience of users. In the space, care should be taken to control the smell wafting, to avoid the bad smell and reduce the impression of the office crowd for the environment.

Tactile experience is an experience of real contact between human body and space, and is the most direct experience in sensory experience^[7]. The tactile experience of the user is dependent on the temperature, humidity and materials of the environment. The most comfortable humidity environment for people is 45%-65%, and the comfortable temperature is 19°C-24°C in summer and 17°C-22°C in winter. In addition, the different tactile sensations brought by the materials in the maker office space will also have different experiences, such as the dining room and the rest area can create a warm and friendly feeling through leather seats^[8]. Soft carpets or warm floors, and the office area can choose glass, metal and other materials to create a serious and calm space state.

4.2. Spatial organization induces user emotions

In the maker office space, its main areas can be divided into reception area, office area, public leisure area, and private space. What makers need most is to use the limited space to create an environment with a sense of comfort to improve their work efficiency and stimulate makers' creativity.

First of all, the flow line in the space is an important part of the spatial organization, and the flow line often determines the plan layout of a space as well as the spatial sequence. The flow lines in the maker office space can be divided into office personnel flow lines, external staff flow lines and fire evacuation flow lines^[8].

Office personnel flow line: The office personnel in the maker office space include individual creators, group makers and service personnel. Most of the individual makers and activity lines are generally in the flow of office areas, while team makers need independent office space, the two circulation lines can overlap or be separated, the main circulation lines in the space is also composed of office flow lines, the need to plan a reasonable and clear and efficient office lines to assist the office population to carry out office activities^[9].

External staff flow lines: their circulation lines can be divided into two types, one is highly targeted and reaches their office area quickly through the flow line, and one has the idea of moving in and enters the office space for inspection and visit through the flow line and indication signs.

Fire evacuation flow line: This flow line is a necessary flow line in the design of each space, which plays an important role that cannot be underestimated. The rationality of the evacuation flow line should be combined with the layout of the entire space to avoid twists and turns.

Secondly, under the condition that the flow is smooth and the functional layout is reasonable, the spatial treatment can be used to make the space form an orderly and staggered spatial relationship, forming a spatial sequence with integrity and unity, further stimulating the user's mood swings and interacting with the space.

For example, in the business space, the key words for positive user experience are trust, efficiency, and expectation^[10]. Therefore, the space should be mainly open, and transparent services with a transparent space environment can increase the user's sense of security and trust.

In the private space, because the private space in the creator office space is not completely independent, but exists relatively, the method used in the space is enclosure and division. The enclosures can be raised or sunken, partially enclosed or fully enclosed. The division can use partial division, absolute division and flexible division to increase the hierarchy of space. However, whichever method is used should ensure the integrity of the space and avoid complete blockage with the outside environment, resulting in the loss of the value of maker office space. For example, interaction space is an effective transition space to balance public and private space.

Table 1. Relationship between degree of enclosure and privacy

Enclosure form	Strength	Degree of privacy
Raised or sunken	Can clearly define the scope of the space and have a strong connection to the space	Weaker
Partially enclosed	Both have relative privacy and can be connected to the space	Moderate

Fully enclosed	Completely isolated from the outside, with private space	Strongest
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4.3. Cultural atmosphere triggers user emotions

A good user experience also represents a strong sense of identity of the user for the space. The identity of the creators comes from two aspects, on the one hand, the identity of the brand culture and on the other hand, the identity of the regional culture^[11].

Brand culture: The brand culture of the maker space refers to the fact that the space has a clear brand positioning, the brand culture can be effectively and quickly spread, and the people using the space get a high degree of spiritual identity. Therefore, in the design of maker office space, it is necessary to integrate the brand culture into the space, such as adding the brand logo, emblem and mascot and other cultural symbols in the space, and displaying them at the entrance, reception, display wall and so on. Or, extract the corresponding colors and forms from the brand culture, and apply them to the design of walls and floors, or add the brand culture features in the details, etc., to express them directly or indirectly, so that people can feel the brand culture in the space, thus strengthening people's sense of identity to the space.

Geographical culture: The culture of each region is influenced by geography, climate and traditional customs. As a result, there are stylistic and thematic differences in the maker spaces created in each region. Regional culture is reflected in the design of maker office space, so it is important to focus on the common local materials, symbols, functions and other such common design language. Reasonable use of regional cultural design language to design the space is a practice that meets the aesthetic standards of the local public. Therefore, the design of a maker space that is in line with the local culture is more likely to arouse the users' emotional experience and make them feel a sense of identity, and the space will have more characteristics and stronger recognition, which is impressive. For example, ZODIAC-ALL INN in Beijing is named after its Chinese enclosed courtyard, with a narrow layout in the front and a wide layout in the back, which has the auspicious meaning of promoting officials and getting rich. Its overall plane reflects the big pattern of China and the future of creator culture. The interior space is made of black steel plates with metal in an industrial style. ZODIAC-ALL INN combines Chinese traditional courtyard with modern industrial style, which not only enhances people's sense of identity with Chinese culture, but also makes people aware of the evolution of time.



Figure 3. ZODIAC-ALL INN

5. CONCLUSION

In the context of “Mass Entrepreneurship and Innovation”, we should consider how to provide a good office environment for entrepreneurs, provide better business services for entrepreneurs, and improve the conditions for entrepreneurship. In the process of social innovation, the study of users is an important part of design, and the exploration of user demand is the main driving force behind the development of maker office spaces towards practicality and innovation. This paper is based on user experience as a scientific and systematic approach to play an important role in guiding the design of maker office spaces. This paper analyzes the use of user experience in maker office space and proposes the design strategy of user experience in maker office space. As a designer, its design is to respond to the real needs of users and optimize the space for their demand, so as to design an office space that meets user demand. The maker office space is a new type of office space, although sought after by the public, but there are still shortcomings in the form^[12]. Therefore, the most fundamental aspect of the long-term development of the maker office space is to focus on the study of users and pay attention to their demand. Understanding the needs and experience of users is more conducive to the progress of maker's office space.

AUTHORS' CONTRIBUTIONS

The paper The Use and Research of Humanized Design in Urban Study Space has been included in Design.

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