

# Architectural Psychology and City Design Concept

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**Keywords:** Architectural psychology; city design; space beauty; creation

**Abstract.** This paper introduces architectural psychology into the process of city design, analyzes combination advantage of subject and space design, as well as provides the adaptable new concept of city space design. It mutually combines architectural psychology with city design to optimize and update design concept city, it integrates humanism into section of city design and forms creative cultural connotation. So that it can motivate scale dimension of activity, flexible and changeable space combination and space fashion line of organizational behavior as well as being good at space limited factor can enhance the beauty and artistry of the whole city design. Creating humanized and high-quality city space can meet requirements of creative ranks in work, study and life.

## Introduction

Architectural psychology is one important branch of psychology and one rising comprehensive subject focuses on study on psychology, its related range is very wide, including with those having close internal logic such as psychology, sociology, ecology, especially with the architecture, environment science, horticulture etc. It is one subject mainly discusses reflection, choice, and improvement of people in realistic environment as well as enables people to adapt to survival, life and meet their psychological demand. Architects have to learn architectural psychology to understand requirement of people in architectural space and environment, only this can they design the architecture suitable to be accepted by people and has positive effect on the overall environment, meanwhile, architects can create different space experience by different architectural design and measure, giving different experience to their psychology, both are mutually related and affected.

## Correlation analysis on architectural psychology in architecture design

In architecture design, architects usually unify people, environment and architect together to make study, so it gradually appears frame of Gestalt theory, the basic concept of tower psychology derives from lab and study of vision of apparent movement. The group of tower psychology thinks physiological process of organism is the basis of psychological process; it is the medium between behavior environment and geograpjical environment. Tower psychology stresses one overall concept and it starts from the integrity on making analysis on architectural psychology, the architects have to review all the information included by plan from the integrity on architecture design and establish tower thinking frame from the perspective of people, environment and architecture, as well as making complete judgment to respond to each factor.

Architecture is one kind of coagulated art and it is the compulsive art, architecture exists in any consciousness of people's life, it is not like the works in the exhibition building in the fixed time and place. Therefore, architects are different from the ordinary artists, architecture is designed for people to use, so architects have to fully consider these characteristics of architecture and analyze psychological experience and reflection of users on architecture, they have relatively complete cognition and self-experience on architectural psychology, only this can they do well in human-oriented architectural design and architecture can be well utiliged by people and more appropriately integrated into the surrounding environment.

## Combination of architectural psychology and city design

**Effect of architectural psychology on architecture space:**Environmental perception is to study problems such as difference behavior of creators to precept capacious sense, intimacy and comfortable sensation of space. The survival environment of human can be divided into social environment, work environment and natural environment. Social environment is composed of human activities, its core is culture, artificial environment is composed of artificiality, including natural phenomenon such as wind, snow, rain, thunder etc. People contact mostly in daily life is artificial environment, natural environment and material environment. We should design environment according to behavior model of creators in city design, creation can motivate thinking vigorously and produce creative space of creative works.

Space behavior just makes reference on activity model, physiologic factor and application manner of space on creators. Activity model means the time table and place table of users in each activity, physiologic factor includes body scale, size, and posture of human activity and activity ability of different people. For example, the creators sitting in front of computer for long time will have feeling of fatigue, tense feeling and aloneness. It requires people to alternate flexible and convenient space for rest, for example, people can set rest place along with the outside and corner of wall (figure 1 and 2), the staff can set off creative thinking from complete relaxation and collaborative awareness to make the wandering space set off among people, they can make public space have the possibility for exchange and communication in the design stage.



Figure 1 Work studio and rest area of outside passage



Figure 2 Corner and rest area of work studio



Figure 3 Red town transformed from Shanghai 10th Iron and Steel Factory

**Combination and advantage of architectural psychology and city design:**It does not only create spacious and warm environment to promote combination of work and life, the design also facilitates communication space of each department cooperation. It makes design arrangement become more humanized in space arrangement and perfect in function. It places key points of design onto public sharing space, work space and communication space etc within city to arrange dense city architecture groups. It can fully meet behavior and psychological demand of creators. Study on environmental psychology indicates that clear line organization can effectively guide stream of people, clear functional form can induce behavior activity to take place, so site design should firstly consider accessibility to guide people come to this place and produce activity. It can form atmosphere of relatively effective colony effect. Most of creators like to assemble in the environment that can provide mutual promotion, discussion and communication. So in the process of city design, it can intentionally make creative atmosphere to enable creative thoughts of creators to mutually conflict and produce spark. For example, the city design transformed from industry relics with historical meanings is popular with the creators (figure 3), just because of creative atmosphere produced by its unique cultural characteristic, regional spirit that forms to the colony effect, it can produce strong attractiveness to the creators.

**Updating of city design concept under architectural psychology:**The openness requires people to provide enough openness and attract creators to bring richness and diversity to city culture, produce space vigor as well as achieve interaction and close relation between architecture and city. Openness includes behavior openness and form openness in the creative industrial park. Behavior openness means openness in function and management. Form openness means human perception in space and form, it is also the content mainly discussed by this paper. Form openness requires spaciousness in space and space overall atmosphere of material interface etc (figure 4), it can

percept the space information communicated by space by sensory organ such as visual and auditory. Behavior openness and form openness are closely related; only creative industrial park considers both aspect can it well be used by people.



Figure 4 Open space of office Figure 5 Space with multi-meaning of bridge passage Figure 6 The population on the street are unwilling to go the overpass

Uncertainty is determined by activity diversity included by creative industrial park and tentative of object behavior. The behavior activity of people is diversified, such as enjoyment, exhibition, exchange, convention etc, with the condition change in time etc, the activity in the same place can also change, for example, the corridor between 2 buildings sometimes is transportation space and sometimes leisure place, people stay here to communicate, read, and rest. Take No 8 bridge of Shanghai for example, it places several chairs and tables in the spacious transportation and one sides lives passage with suitable passage, which dose not only increase usage rate of space but also makes space have multiple-meaning (figure 5). So the design of creative industrial park must be flexible so as to adapt to activity polytropism of object. Modulate obscure and multi-meaning space, it adopts flexible space to adapt to diversity in function. As for construction of architecture, it most forms open space to ensure the circulation of behavior. At the same time, space environment should also use corresponding richness to meet different behavior requirement.

Visibility is also indicated in the degree of difficulty of reach the aim. People would walk on the level road rather on the bridge (figure 6), this sentence better describes the experience of people on vertical transportation system. So if the space relation in and out of doors can not meet behavior habit of people, for example, people have to go out by this vertical transportation, walk up and down stairs will give people the feeling of fatigue, many temporary and natural stay in and out of door will be ended, the utilization rate in and out of door will greatly reduce.

**Industrial correlation positioning of architectural psychology and city humanism:** Public space is the first window of population to contact the city and it can clearly exhibit industrial pattern of this city. If it can exhibit the city topic can it give form clear city image to people, so that it can attract industry of the similar kind to stay and form good industrial chain. We should expand topic identification of creative industrial park and form natural characteristics and style. The creation of space environment must be based on space topic, for example, the positioning is set as No 8 bridge of fashion creative center (figure), it indicates more fashion factors in the space, choose rich and changeable material, color will give novelty and enjoyment to people. While for X2 creative space focuses on II and creative design, space design indicates digital and science, it cleverly integrates digital products and multi-media exhibition into space design (figure 7 and 8).

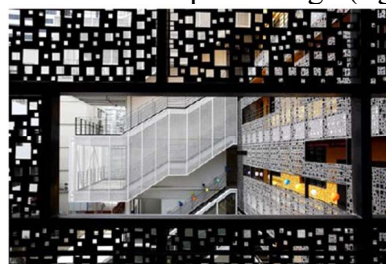
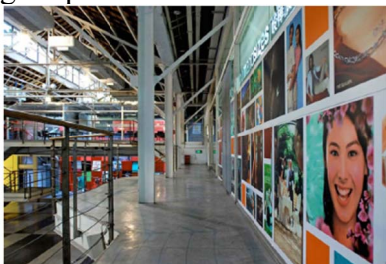


Figure 7 Fashion factor in public space of b ridge

Figure 8 X2 Application of digital factor in creative space

Figure 9 Uniform work sculpture of blue in art area

Integrate culture into people's life and form new culture of creative space. This kind of new space culture can meet pursuit of creators; eliminate tedious and dull space, making city space have vitality [33]. For example, 798 art areas in Beijing, in the eyes of people are the mottled red brick



and tile wall, picturesque disorder industry factory, the worker sculpture with odd uniform perfectly integrates history, geology as well as modern industry and art together (figure 9).

## Overall city design under architectural psychology

**Scale and measurement on activity motivation:**Space scale dose not only meet scales such as equipment, human body size and operation activity etc, it should also consider psychology size and master the scale size of space, which is helpful for staff to get relax in psychology and mental. Personal space theory in architectural psychology points out that personal surroundings have certain personal space range, intrude and disturb this range will make people feel nervous, it controls the communication space between people and people. Personal space bubble will move with body, the required range by space is front side of body is larger than that of behind body, the side is the smallest. On the car, the personal space will relatively narrow. But people in this space will adopt certain behavior to maintain privacy, for example, people should not stare at each as far as possible (figure 11). Space of creative industrial park will create respective place and regional range according to requirement of application function and architecture image. While the sub-space of internal space is relatively larger and flexible, it can rely on the following methods to obtain suitable space scale (figure 12).



Figure 10 Keep privacy and no staring on bus



Figure 11 Comfortable space scale



Figure 12 Set sculpture limitation space in square of red town sculpture

**Flexible and changeable space combination and space streamline of organizational behavior:**Most of the architectures are composed of plenty of space, different space has different function, and it can use certain manner combination to finish utilization function with larger range. Because space combination use direct connection will become abrupt and frail, for example, 2 larger spaces are directly connected by cave entrance, if people go into from one space to another they will have ordinary feeling. Space streamline can be divided into penetrated style, menu style and inlay style. It is very important to choose suitable space streamline.

**Being good at using limited factor of space:**The space before being limited is generally regarded as original space, while the component of limiting space is called as limited factor. The usually used methods by space design are as follows: establishment, surround, cover, bulge, sink, overhead etc. But limited factor is divided into vertical and horizontal from space dimension, the vertical limitation methods include establishment and surround, while the rest are horizontal limitation methods. In the design of creative industrial park, we should be good at using each space limited factor to form rich and colorful space. Such as square of red town sculpture is to use establishment limited method to form space by occupying the surrounding space of square (figure 13). When it forms closed whole enclosing, space limitation reach the strongest and it has maximum space capacity. When the enclosing has opening it will form virtual cover and makes space produce trend of internal and external exchange and merger. When there is more and larger open, the integration force to outside will be much stronger. There is usually vertical space factors such as separation, partition and green hedge, because they are dense and have different penetration degree, the space feeling created will also have difference (figure 13). In the internal space, the methods used on top of space are usually formed by suspension and bottom support, they are most used in the high and larger space in the middle of yard. The raised limitation degree will become weak on the contrast, when there are may levels it will form step shape, the raised limitation degree will become weak. Bulge usually has function of stress, extrude and activity limitation, it will be

used in exhibition activity such as stage, exhibition platform etc (figure 15). Overhead creates another subordinated space underground. The space limitation range of the erected space is detailed and clear compared to other bottom space. For example, the mezzanine in buildings, rich space pattern will increase space interest (figure 17).



Figure 13 Surround of green partition



Figure 14 Cover limitation



Figure 15 Bulge limitation of exhibition platform



Figure 16 Overhead in doors

## Conclusion

Architectural design and architectural psychology is mutually closed and related, architectural psychology is the thinking process of tower manner, it is one overall thinking manner but not single. On making architectural design, architecture needs to consider relations of space and environment form the overall idea, dialectical relationship between space and psychology; it will further make objective design and creation of architecture space and strive hard to crate one pleasant space for people. Architectural psychology should also make profound analysis according design stream form of some architecture at present; explore psychological perception of people on artistic appreciation. Because design of many architectures are relatively blundering and dose not fully consider the psychological perception of people on application and appreciation, it can correctly guide direction of architecture by deep and profound analysis, but not stay in the surface and stay in the relatively blundering mental state.

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