

Application of Environmental Psychology in Environmental Design

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Abstract: With the development of society and economy, there are more and more malpractice in environmental design, which causes more and more social problems and influences the development of society. Through the angle of environmental psychology and the scientific method of psychology, this paper provides a new design idea and method for today's design.

Keywords: environmental psychology; environmental design; emotionalization; psychophysics;

1 Introduction

With the development of social economy, people's demand for indoor environmental space is more extensive, and the pursuit of spiritual quality of life is more obvious. In today's social environment, people's daily life, behavior and habits must be carried out in the environmental space, and the old and unchanged design can not meet people's psychological needs for the environmental space. We should make use of the knowledge of environmental psychology to improve the environmental design to a certain extent, and stick to the design principle of humanism, to create the environment space. ^[1]

2 Overview of Environmental Psychology

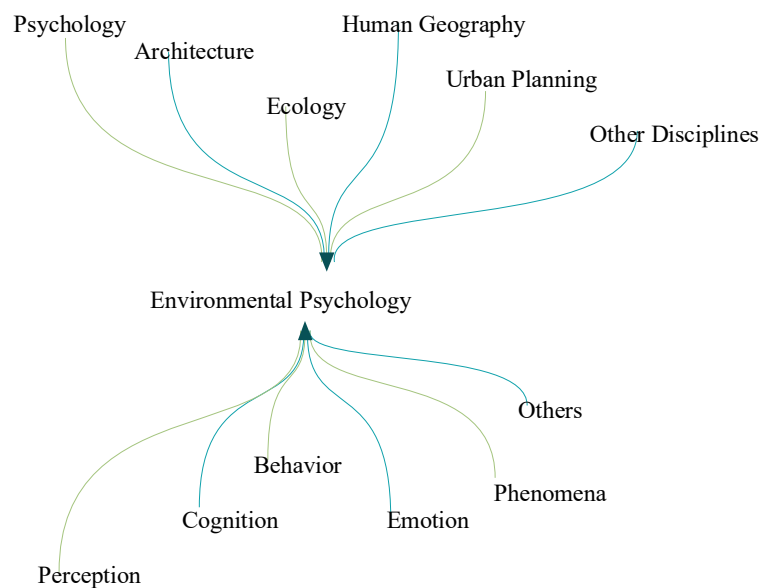
Environmental psychology is an interdisciplinary subject, which can be combined with other subjects, and it can understand people's psychological activities and needs more accurately. Most of people's behavior will be affected by the environment, and the environment will change because of people's behavior, people and the environment are mutual influence, mutual change.

It seeks to explore and enhance the well-being and comfort of people living in a community by addressing the complex phenomena of the social environment in which they live, while paying attention to the interplay and interdependence between social environmental systems and human systems. When using environmental psychology to study the relationship between man and natural environment, we must carry out the principle of putting people first, no matter from the overall or the local point of view. ^[2]

The research topics and fields of design psychology can be divided into four parts: the first is the basic, that is, the material level, covering the physiological and environmental. Here, physiology refers to man's internal, including man's psychological and behavioral activities, while environment is external, which is the material condition and basis of man's psychological and behavioral activities, and then the dynamic system, namely man's demand-driven behavior. The third part is the individual psychological factors, individual psychological factors are also diverse, different, but there are stability and universality. The fourth part is the individual psychological process, which is divided into three parts by ordinary psychology (originally referred to as "perception", but later modern cognitive psychology extended "knowledge" to the whole process of information processing - cognition, including the psychological phenomena closely combined with and indivisible to perception, memory, representation and thinking), emotion (emotion and emotion) and intention (will or will). [3]

Environmental psychology interacts with many areas of research (see table 1), which, when combined with different areas, results in human-environment interactions in that area and provides guidance for designing more user-friendly environments that blend with other areas and generate new sparks.

Table 1 Integration of Environmental Psychology with Other Fields



3 Psychological Effects in Environmental Design


3.1 Interpersonal distance

Interpersonal distance refers to the distance between people when they communicate and talk with each other in the course of daily communication. These distances are usually divided into four degrees, which are (see table Table 2): (1) Intimate distance (0 ~ 0.4 meters): This

interval is the most intimate, and the two parties can get close to each other and feel each other's body temperature and breath. But the distance is limited to lovers, couples, or very close friends. (2) Personal distance (0.4 m to 1.2 m): This interval is the distance between individuals, usually between friends and classmates. (3) Social distance (1.2 meters to 3.7 meters): This distance reflects the distance at work or during business conversations, and the appropriate distance can give both parties a proper and relaxed feeling, more convenient communication, etc. (4) Social distance (more than 3.7 metres): When we communicate in a formal environment, speech or other public place, the communication is generally unilateral, and in general, one or two speakers need to keep some distance from the audience. [4]

We need to consider different people in environmental design for the use of different space, use, purposes, and so on, according to the data of interpersonal distance, reasonable design of space, for the space in the reasonable placement of items, so that different users in the use of space, can be comfortable and appropriate interpersonal distance, so as to form a stable space model.

Table 2 Interpersonal distance and population

Distance (m)	0-0.4	0.4-1.2	1.2-3.7	3.7 Above
Crowd	Lovers, Husband and wife	Friends	Friends, A colleague	Public
Action	Hugs, Touch	Shake hands, Conversation	Cooperation	A speech
Intimacy	Close strangers 			

3.2 External factors

3.2.1 Phototaxis psychology

Phototaxis psychology is a kind of human instinct, which is a positive kind of existence in human subconscious. Bright environment can give people a sense of security. As a result, in most cases, the visual center and psychological trend are more likely to be placed on the environment with high illumination or objects with high brightness. Therefore, the flow of people in the environmental space is mostly from the dark to the bright place, from the light dispersion to the light aggregation place.

Therefore, in the design of the environmental space, we can according to the characteristics of people, reasonable, purposeful layout of the lighting, the main space, entrances and key display items improve brightness or give key lighting, people's eyes and attention will involuntarily be attracted to the light area. When using different lighting intensity, different lighting colors can also be used to create different space environment atmosphere. Different colors and different lighting brightness will give people different feelings, and will also bring different psychological hints to people (such as Table 3, Table 4). Therefore, in the environment design, according to the specific expressive force needed by the space environment, and match different lights with each other, so that people's physical and mental feelings are more appropriate.

Table 3 The psychological feelings brought by different colors

dyestuff	It feels like something in the heart
red	Enthusiasm, dangerous, exciting, and gorgeous
yellow	Clear, active, healthy, and warm
white	Clean, simple, dream, cool
blue	Peaceful, forever, profound, calm
pink	Romantic, soft, sweet, and lovely
green	Quiet, natural, cool, and healthy
purple	Wise, gentle, classical, delicate and charming

Table 4 Relationship between illuminance and color temperature and sensation

illuminance /lx	The sense of light source color		
	Cold color	middle	Warm color
≤500	cold ↑	middle ↑	pleasant ↑
500-1000			
1000-2000	middle ↑	pleasant ↑	exciting ↑
2000-3000			
≥3000	pleasant	exciting	theatricality

Therefore, we should make full use of the guiding role of space lighting, according to the different space use and purpose in the environment design, choose the appropriate space lighting color and brightness, to meet people's physical and mental requirements, to meet people's psychological needs for light.

3.2.2 Space boundary enclosure

Different space boundary enclosed shape often bring different psychological feelings, boundary enclosed is mainly divided into: linear, curved, polyhedral and compound, such as: linear space enclosed will give a person a kind of stable but lack of interesting psychological feelings, circular space enclosed will give a person a kind of quiet, harmonious, enlarge psychological feelings.

There are also completely closed, semi-closed and open space in the boundary of space. In the space, people need certain closure to protect privacy, but also need certain openness to communicate with the outside world, in the environmental design

3.3 Behavioral and psychological characteristics of people

Due to the development of society and the long-term life behavior of human beings, people and the environment are interwoven, which inevitably develop a lot of instinct to adapt to the environment, which is the behavior habit of human beings. Simply put, there are the following points: ^[5]

3.3.1 Britcutting

When people have a clear understanding of the location of the destination, there will always be a purposeful movement, and people will tend to choose the shortest distance from the destination. For example: a grass, even if the staff set up obstacles around it to prevent damage, but because of people's shortcut habits, people will still ignore these obstacles, directly through, over time, formed a human road.^[6] When crossing the road, people always choose the latter between the overpass and the road. Even indoors, people will also because of the entrance or furniture placement improper position, need to detour to make people worry, so people will move or even destroy obstacles, this is people's shortcut habit. Therefore, in the design of environmental space, we should pay attention to the psychological habits of people taking short cuts, and reasonably and properly arrange the items and nodes in the space environment.

3.3.2 Road knowledge

It is also a habit formed by people in their long-term life and social development. In general, when people encounter complex situations or dangers, the first time is to choose the original way to return.^[7] When people are not familiar with the path, they will explore while finding the destination. When they return, people usually choose to return in the original way for safety. For example: when a fire, people in mind of the first reaction is to run to the elevator, rather than choose the nearest safety exit, still go the familiar road to escape, this represents the influence of influence on people, so we in the design of the environmental space should be good at making use of people knowledge of psychological characteristics, spatial route and layout of reasonable planning.

3.3.3 Aggregation

As social animals, human beings meet each other's needs in groups, which is the basic reason of people's aggregation.

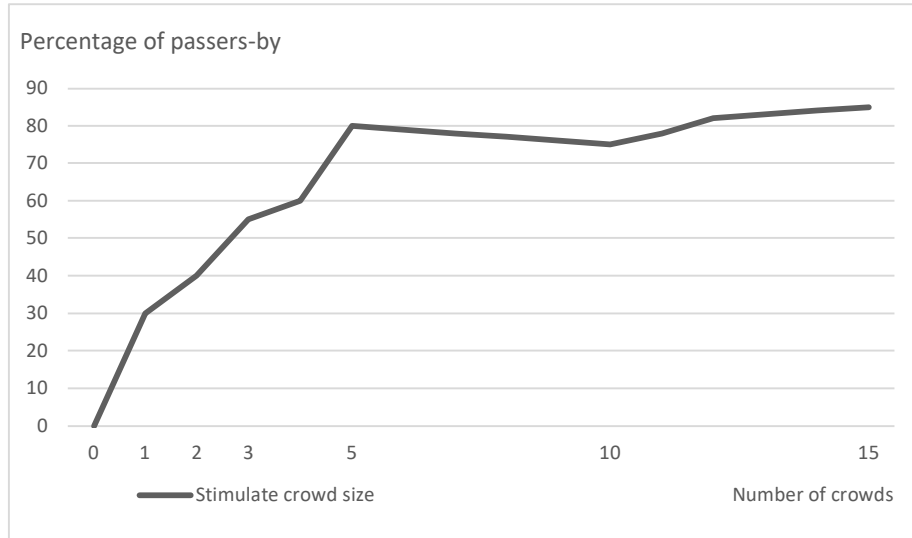
People gather because of a natural social instinct, and research shows that most people can meet their needs because of others.

At present, there are roughly two reasons: first, reduce anxiety.2. Reduce fear, and fear can cause a tendency to flock together. In the environment of fear, the presence of others can give people a sense of safety.

3.3.4 Conformity mentality

When people are uncertain about the influence and pressure of the group, the opinions of others are the most reference, while people deviate from the group(such as Table 5)

Table 5 Line plot of population number affecting passers-by behavior



4 Conclusions

With the gradual improvement of people's quality of life, people's aesthetic ability has been gradually improved. Modern environment design not only needs to meet people's functional needs, but also needs to reflect more beauty and artistry, but also to meet people's inner needs. In today's environment space design, elements, materials, form to the environmental space of more and more kinds, in improve the quality to meet the needs of People's Daily life at the same time, also need the design of the whole environment space meet people's psychology, make people's spiritual needs met, create a more humanized, artistic space layout. Environmental psychology believes that the environment has an important impact on people's psychology. Environment has a positive impact on people's psychology, but also has a negative impact,^[8] need to play its positive impact, make full use of environmental design, improve the level of interior design, combined with the practical function of psychological design and artistic aesthetic, to build a comfortable, personality, beautiful, high-quality environmental atmosphere for users, let people form a good psychological state.

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