International Journal Of Architecture and Urban Development
Vol.1, No.1, Spring and Summer 2011

A Study of the Perspectives of Architecturale and Environmental Psychology (Theoreticians and Psychologists)[1]

[2]Seyedeh Marzieh Tabaeian ;[3]Alireza Einifar*

[2]Ph.D.Department of Art and Architecture ,Science and Research Branch, Islamic Azad University,Tehran,Iran.
[3]Ph.D.Associate Professor of Architecture, Department of Architecture, University of Fine Arts , University of Tehran. Iran.

Recieved 13.07.2010; Accepted 26.12.2010

ABSTRACT: The concept of place and the necessity of understanding the plan and thus the reality of architecture has always been an important issue for architects. The mental and psychological effects of architectural frames on human beings have been considered from the early shelters to today´s modern structure. Since the human behavior is performed in defined spaces, it is necessary to design the physical space based on people's behavioral characteristics. In this papar, different perspectives on the relation between psychology and architecture as an interdisciplinary plan in two areas of perception and planning are studied. First, some general concepts and principles are presented and then an attempt is made to integrate the two. The main purpuse is to study how the designed environment by man affects his mind and soul in terms of function, form and other factors and also how the architecture is affected by controlling the behavior and individual as well as social motivation based on the principles of environmental psychology. Establishing optimum relations between man and his designed environment is the main objective of this study.

Keywords: *Environmental psychology, Human-made environment, Behavioral setting, Environmental perception*

INTRODUCTION

Man changes his environment on the basis of his needs and aims and is himself affected directly by the environment in which he lives. In designing architecural spaces, few are the cases in which adequate attention is given to the psychological aspects related to the user of the space. Therefore, it deems a necessity to focus on the cognition and consideration of space. According to Gibson (1979), an architect should learn the existing relationship between the surface and facilities. A close relationship with shape and form may be established if architecture be considered as a visual and objective art, rather than merely a means of building and practical environment in which individuals may work and rest. Heidegger, for the first time, proposed that "existence is spatial" and that "one cannot separate man from space". Space is neither a concrete object nor an abstract one; otherwise, there may exist neither man nor space. Therefore, the space and environment have special significance in architectural theories and invite extensive study and research. The organization of the environment affects the mutual relationship between people and environment.

*Corresponding Author Emaile: *marzieh.tabaeian1@gmail.com*

[1]This article is based on the researcher's Ph. D dissertation supervised by Dr.Ali Reza Einifar in Islamic Azad University, Science and Research Branch, Tehran, Iran

Presentation of the Issue: the definition of environment

"Environment" is a complex concept incorporating diverse aspects. Spatial data, social aspects, and cultural, physical, architectural, symbolic, geographical, historical and biological considerations are among the significant environmental dimensions. The studies carried out by ecological specialists or specialists in environmental psychology show noteworthy considerations of physical and also symbolic and biological dimensions (Mortazavi, 2001, 31). Gibson presents the following model for basic human behavior resultations:
In the model, Gibson defines environment thus:
"The environment has the potential to provide for human experience and bahavior. The main processes involving the mutual transactions between man and environment are displayed in the model. Knowledge of the environment is gained through perceptive processess which are induced by schemata and guided by human needs. These schemata are, to a certain degree, innate and acquired; they establish the link between perception and cognition. Schemata guide not only perceptive processes but also affective responses and spatial behaviour. These processes and responses in their own turn affect schemata- as the result of perceived behaviour. Human feelings and actions are limited by the potentials of

International Journal Of Architecture and Urban Development
Vol.1, No.1, Spring and Summer 2011

the natural and artificial environment, cultural environment and man's own personality." (Lang, 2004, 95) It can be thus stated that attention should be given to the higher levels of perception, i.e. cognition and emotion and the boundary between these two types of behavior. The role of schemata and environmental potentials in the process of perception has been shown. In Gibson's model, perception is the preliminary stage leading to cognition and emotion and spatial behaviour occurs in the subsequent stage. Gaining information occurs via the cognitive process and from the environment. Schemata could be considered as the guiding element in this process. In definity and describing the environment, it is worth nothing to consider Kraik's (1971) view. Kraik believes that evalution of the environment can be carried out through methods which are commonly used in psychology and humanities. He suggests five kinds of evaluation could be carried out in order to enable the description of location. They are as follows:

1- Measurement of the physical dimensions of the environment such as lenght and height and width of room, for example, a stairway; the amount of light, etc.

2- The variety and number of artifacts in a space or location such as the number of chairs and furniture in a bedroom, or the machines and tools standing in different spaces.

3- The place traits, such as the cheerfulness and pleasantness of the location, etc. it should be noted that place traits are determined by an overall assessment of specialists opinions and cannot be established by one person who may have been influenced by psychological factors.

4- It is necessary to determine the usual types of behaviour typical of a specific place; for example, in some places such as parks, the variety of behaviour is much, whereas in other places such as cinemas, this variety is limited.

5- The conditions of the environment in terms of organisation and social atmosphere could also be determined. For example, it could be established whether the general atmosphere of a school is warm and friendly or frigid and unpleasant (Mortazavi, 2001, 18).

In a general overview, the four main domains in the field of environment design are the following items which draw attention to the various aspects of designing ralated to different fields.

Types of Environment:

In many studies, environment is categorized into four main distinctions:

1- Physical environment

2- Social environment

3- Psychological environment 4- Behavioral environment

The physical environment includes land sites and geographical locations; the social environment includes organizations constituted by individuals and groups; the psychological environment includes peoples, mental images; and the behavioral environment includes any factor to which the individual responds. The main point observable in this and other similar categorizations is distinction between real, objective

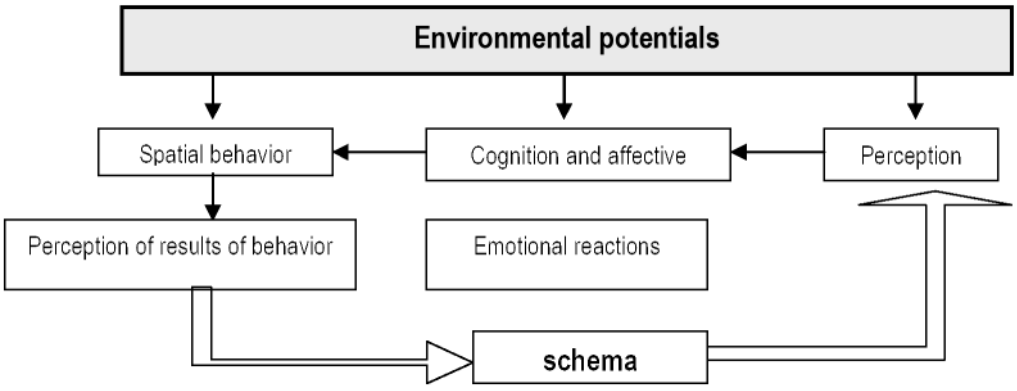


Fig. 1: Model of basic human behavior resultants (Gibson,1979)

Table 1: Domains: (Kamel Nia, 2007, 12)

Number	Domain	Features
1	Spatial	intimate, open, closed, active, silent, relation with nature, nostalgic, technical
2	Psychological	tranquil, safe, pleasing, play, simulation, creative, encouragement, mental, social tendency
3	Physical	warmth, frigidity, coolness, cozy, visual pleasure, fragrant, structure
4	Behavioral	individual study, co-operation, group work, physical activity, writing, reading, working with the computer, music, theater, presentation, design, building, instruction, rest, play

or concrete world surrounding man and the conceptual world which consciously or unconsciously affects behavioral patterns and mental responses of people (Lang, 2004, 87).

Table 2. Type of environment (Authors)

Number	Model	Essence
1	ideology and philosophy	laws
2	Law	regulations
3	policy-making	strategy-tactic
4	Culture	values
5	Program	paradigm, concept
6	artificial nature	pattern
7	natural nature	cycle

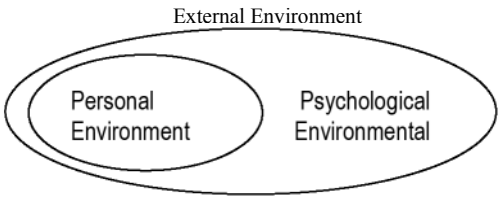
What an architect creates is called potential environment which is a space for human behavior and what man uses and praises is an environment which affects him. The role of proven theories in professional designing is elevation of designer proficiency in estimating effect of the designed environment on people. It also involves a cognitive enhancement in relation to spatial behavior and motivation processes, cognition, identification and emotion, such that a designer is enabled to create better environments for fulfillment of human activities and aesthetic values. With a profound cognition of nature of environment and human behavior, it becomes possible to compile a conceptual framework and a set of concepts which would give a more complete picture of relationship between environment and human behavior in relation to fatalist architectural perspective. (Lang, 2004; 85-86) From table (2) It could be inferred that “artificial nature” refers to human-made artifacts and defines “pattern”; natural nature presents existing signs and secrets and defines “cycle”. The created environment, whatever its scale of construction may be, is a 'cultural cipher' which presents social institutes constituting and nourishing that environment.

Architecture and Behavioral Sciences

“Architecture leans towards programming i.e. determining needs and proposing a draft and finally suggesting a suitable location in accordance with needs and building of the site. behavioral sciences on the other hand are concerned with how environment is used in terms of consistency with needs of society"(Razjoyan, 1996). However it should not be supposed that architecture is only concerned with location. Since any location is the background of certain social-cultural phenomena, architect must therefore be concerned with such phenomena too, although it is the location that stands foremost. In the same way, behavioral sciences are concerned with phenomena but cannot be wholly negligent of location since any social phenomenon does obviously occur in a particular location.

Definition of Cognition

"Cognition" in current psychology refers to a mental process which actively selects and organizes and in the final stage gives meaning to sense perceptions. In other words, cognition is a process during which experiences acquire meaning and man is thus enabled to understand the meaning of, and relations between various phenomena. This process occurs so rapidly in the mind that it seems to be simultaneous with sensation. It seems that in this course of action, physical experiences, their ensuing meanings and concepts, individual motivation and circumstances in which the individual is situated are all involved. "Brunswick (cited in Gifford, 2005) believes that cognition is an effect aimed at forming a beneficial image of environment from among the existing chaos of confusing signs. He believes that observers- as active representatives seek theories in relation to environment and in this course follow their own method in order to reach their ultimate aim. His perspective on environmental psychology is based on determining elements which bring about the real condition which is not even observable. The condition may be fear of the occurrence of crime in the neighborhood. In Brunswick’s view, observer and environment are equally important and play equally significant roles in cognitive process. He points out that environment has various signs and observer must notice the most important in order to operate ones in the existing situation and current conditions. (Gifford, 1997)



Living space = Man+ Environmental Psychology
Fig. 2: Model of human living space. (Gifford, 1997)

Association, Cognition and Behavior

All human behavior occurs in specific spaces which are considered as its setting. In these spaces, behavior is, as far as existing capacities permit, allowed to manifest. A space can be considered favorable when it is consistent with behavioral characteristic and conforms to human needs. When, in the course of designing a space, the issues of human company, cognition and behavior are not taken into consideration, the individual due to his lack of fulfillment tries to organize the space according to his needs and does so in harmony with his values and objectives and is, conversely, affected by this change in space. Therefore in order to obtain human spaces in which environmental values are also taken into consideration, it is necessary to pay due attention to reciprocal exchanges

International Journal Of Architecture and Urban Development
Vol.1, No.1, Spring and Summer 2011

between man and environment.

Mutual Relationship between Man and Environment

Cognition and safekeeping of environmental values is effected when a proper cognitive relationship between man and environment is established. As long as man's basic environmental needs are not realized and provided (needs such as physical and mental calm, security etc) it not possible to determine the relation between spaces and realize visual values; and consequently safeguarding of environmental values is a futile expectation. In general, from the perspective of cognitive psychology, man feels contentment and tranquility in relation to his environment when he is able to project a clear image of its limits and content in his mind. In fact, the process of cognizance in relation to environment involves internalization of outside world and projection of an understandable mental image of objective reality. By creating such an image, evolving concepts and giving names to worldly phenomena, man is able to give a shade of acquaintance to alien environment in which he lives. Stability of these mental images develops into a reservoir of memory and recollections and establishes identity for environment, leading to attachment to it. When cognition of environment becomes a unified, harmonious whole, aesthetic feeling is nourished and subsequently visual pleasure results. It is only in such conditions that the individual is motivated toward safeguarding of environmental values and betterment of environmental drawbacks.

Factors affecting the cognition of environment

In environmental psychology human behavior is considered as being affected by factors such as physical elements of environment, symbolic data, designing data, architecture and environmental atmosphere. Reciprocally, man affects environment due to his behavior which stems from cultural, social, economic factors and personality traits; he organizes and changes environment with the aim of fulfilling his physiological and social objectives. Young(1990), in relation to behavioral systems, believes that people are shaped by physical environment to the same extent that they are by the social setting.

The schools of environmental psychology can be studied from three perspectives:

1- In depth psychology or psychoanalysis which is based on the ideas of Freud and Jung;

2- Behavioral psychology which is mostly limited to behavioral aspects which can be observed and measured;

3- The Gestalt school which endeavors to create a behavioral whole on basis of the constituent parts.

Generally speaking, environmental psychology takes note of some principle concepts such as privacy, domain, personal space, crowdedness, etc., before focusing on a specific place such as house, school, office, etc. and it takes into account its particular behavioral and environmental elements (KamelNia, 2007, 8).

Schools of Environmental Psychology

Man is continuously in transaction with environment, of which he is considered part of, and considering that human behavior is set in framework of environment, relationship between man and environment has always been looked at as a "give and take" process. There are various perspectives in relation to the schools of environmental psychology, each of them looks at one aspect of principle relationship between them. Relationship between man and environment and effect of latter on the former has been subject of many experimental studies which lead to proposal of proficient opinions. Following is a summary of theoretical perspectives of three environmental psychology schools i.e. in depth psychology, behaviorism and the Gestalt school, which are the origins of other theories in the field of scientific psychology.

Behaviorist Psychology

In the behaviorist school, studies have been carried out which are limited to those aspects of human behavior which are observable and lend themselves to measurement. This approach looks scientifically and systematically at behavior-related subjects. Here, environment is studied as a collection of stimuli which bring about responses from the organism.

The research method in this school is laboratory experiment carried out in psychological laboratory and is principally concerned with simple and recordable stimuli. In this school, behavior is studied in an artificial setting: a part of the environment is used as stimulus and output responses are observed and measured. In general, in this type of research, behavior does not occur as it would in a natural setting and natural conditions of environment are not basis of experiment. (Mortazavi, 2001, 8)

1. Gestalt School

In this school, in contrast to behaviorist, researchers believe that complex phenomena including behavior cannot be analyzed into simple components because the whole of any phenomenon i.e. it's Gestalt, is different from the sum of its constituent parts. Therefore, through accumulation of studies on various

Table 3: Theoreticians of Environmental psychology schools

Environmental Psychology Study	Method	Theoreticians
	Perception Psychology	Brunswick, Gibson
	Social Psychology	Altman, Barker

constituents of the behavioral process a picture of its whole should be depicted. Gestalt theoreticians, more than those of other schools, take into consideration the environmental conditions as a whole. Koffka (1935), one of the pioneers of this school, divides the environment into two categories: "geographic" and "behavioral". "Geographic environment" is an objective environment, and "behavioral environment" is used to depict that which is experienced by the individual (Mortazavi, 2001, 9).

On basis of this theory, cognition incorporates three stages: cognition of design of object under question; cognition of form of object under question; and cognition of background or environment of object under question.

The three above stages occur with such speed that it seems they are simultaneous; apparently cognition occurs on the basis of design, form and background- which has a particular order; if there is an absence of these three elements, there will be no clear cognition of objects, events and affairs. Therefore, it can be said that according to followers of the Gestalt school, the relation between the cognitive response and the physical stimulus should be studied both in terms of "cause and effect" relationship and content independence.

Gestalt theory researchers have reached conclusion that the individual in addition to his preliminary attention to the overall meaning of the subject does- in the following stage- turn attention to constituent parts and his realization of the relation between constituent parts occurs in a revelation- like manner. An individual may, on two separate occasions, have two different perceptions and experiences of the same geographical environment. The Gestalt theory, especially in relation to architecture, is mostly considered in environment cognition hypotheses.

2. Lewin's Theory

Lewin considers behavior to be a function of bio-space and asserts that behavior complies with the perception of environment, not the objective environment. It can be said that Lewin's conceptual approach to human behavior has had a significant effect on multiplicity in motivation, group dynamicism and cognition of phenomena. Lewin believes that internal reflection projected by the individual of environment is main factor generating movement in the living space. In other words, the individual's beliefs concerning environment which are reflected in mental image, affect him more than the environment itself. Thus, mental reflection of environment can affect individual's further cognition of it. Therefore, according to Lewin, objective environment is one of the most important psychological realities in the living space (MC Andrew, 2008).

In Lewin's space psychology, the individual, psychological environment and life's outer framework are in mutual transaction. "The individual is- metaphorically- placed within psychological environment and both the latter and the former are surrounded by outer framework. The characteristic feature of domain boundaries of a living space is their impenetrability. New psychological factors visible to the individual may instantly become part of individual's psychological environment; therefore, in order that a part or aspect of material world may affect conscious behavior of the individual, it must, through mutual transaction, enter his psychological space from outer shell. In Lewin's approach "topology" and "vector" are concepts used to define the main characteristics and the living space. (shokrkon et al. 2003, 324)

3. Cantor's Theory

Cantor, a prominent figure in environmenal psychology, considers environment as a combination of activities, concepts and concrete surroundings, and as created by overlap of these three domains. Consequently, it can be said that the view toward location is shaped by focusing on a number or combination of these constituents. For example, environmental psychology gives much importance to relation between material framework and activity. The figure 4, which is known as Venn diagram shows the conjunction of three domains coinciding with space and role of such conjunction in the cognition of space.

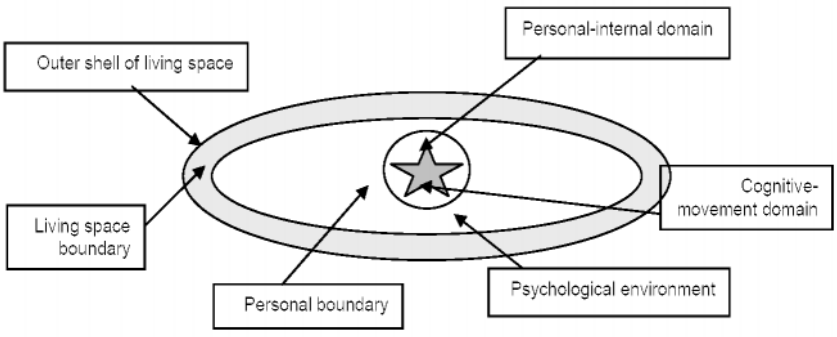


Fig. 3: The Lewin space model in psychology (shokrkon et al. 2003, 324)

International Journal Of Architecture and Urban Development
Vol.1, No.1, Spring and Summer 2011

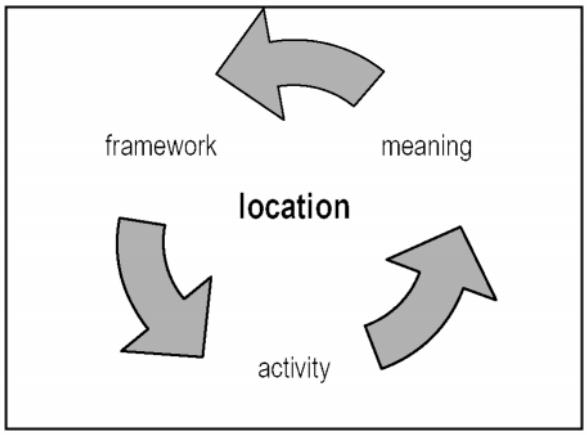


Fig. 4: Venn diagram and the coincidence of the three domains of activity (Authors)

Environmental Psychology and Behavioral Motivation

In environmental psychology, emphasis is put on effect of environmental conductions in initiating, intensifying or weakening certain needs; this is not a refutation of innate motives. Environmental conductions affect process of behavior motivation in the following ways:

Environmental conductions cause the provocation of basic and secondary needs. For example a well-equipped sports stadium cause the urge in people to exercies.

Suitable environmental conductions help satisfy needs or vice versa. In order to satisfy many kinds of needs the use of spaces with specific feathures becoms incumbent.

Whenever the spaces being used do not have necessary requirements, satisfaction of needs is postponed and the individual is plagued by mental conflict and stress. As example would be a situation in which one is forced to rest in a noisy place.

CONCLUSION

Considering the above mentioned issues and the various studies carried out concerning the relation between architecture and behavioral sciences (especially in the field of psychology), it could be inferred as a pivotal conclusion that the co-operation of researchers in various fields of behavioral science has a key role in the process of design and architectural expansion. This is due to the fact that they know, better than an architect, the way to interact with people and gain information from the real users of architecture. They can, in fact, act as sincere translator mediating between the architect and the society using the architect's artifacts. The main result of such co–operation is proximity to the potential and actual environment designed by the designer and controlled and corrected by the specialist on behavioral sciences.

Attempting to "humanize" space should be the first priority for everyone and more so for the architect who is, in a civilization which is more or less urban, responsible for giving order to the living space. Accordingly city planners, policy makers, contractors, green-spaces specialists and artists are in harmony with architects, more or less responsible for creating consistency between man and his environment. Therefore, if we believe that cognition of the world depends on the unity between man and the world, and if we consider the world and its constituent parts such as art, the expanse of being, and architecture as the sides of a unified reality, their cognition will be dependant on the projection of an image of this reality in the mind and soul of man, and it is in this way that the process of the shaping and man infestation of various images, whether they be in art or in architecture, is posited as a bi-lateral process in direct relation to cognition.

REFERENCES:

1.Falahat, M.S. (2004). The Role of Design in Perception of Place. Ph.D disseration. Faculty of Fine Arts, University of Tehran.
2.Gibson, J. (1979). An Ecological Approach to Visual Perception. Boston: Houghton Miffin.
3. Gifford, R. (1997). Personal Space, Environmental Psychology, principle and practice, Allyn and Bacon, pp. 171-186.
4.Gifford,R, (2005), Applying Social Psychology to the Environment: Six Goals of Social Design, SAGE publications.
5.Kamel Nia, H. (2007). Grammar of design of learning environments. Tehran: Sobhan Noor.
6.Lang, J. (2004). The creation of Architectural Theoeory. Translated by Einifar, A. University of Tehran Publications.
7.Mortazavi, Sh. (2001). Environmental Physcology and its application. Shahid Beheshti University Publications.
8.Mc-Andrew, F. (2008). Environmental Psychology. Translated by Mahmoodi, Gh. Tehran: Zarbaf Asl Publications.
9.Razjoyan, M. (1996). A look at the Combination of Architecture and Behavioral sciences in the last 50 years. Sofe, vol. 6, p.23.
10. Shokrkon, H. et al. (2003). Psychological Schools and their criticism. Tehran: Samt.
11.Sommer, R and Sommer, b, (2002), A Practical Guide to Behavioral Research: Tools and Techniques, (5th ed). oxford Practical Press.
12.Young, J. (1990). Justice and the politics of difference, Princeton University.

Table 4: Model for presenting factors initiating sense perception of space and location (Source:Authors)

Constituents of location / Human needs	Framework Design	
	Individual and collective activities	Concepts
Phisiological needs	Factors initiating the sense perception of space and location	
Psychological needs		
Sociological needs		