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SPATIAL PERCEPTION STRATEGY IN ORIENTATION DESIGN How the Environment Create Harmony Between Human Made and Nature to Help People to Orientate

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ABSTRACT

Space perception means awareness of depth and distance, and relations to the object around us. The human being has perception to recognize, accept, learn and do the act according to movement, and to do the action that information and signage system guides and proposes the human being to do the action.

Designing space has to consider human perception of space, human perception of information system in space. Information and signage system give instructions for people to behave.

The signage system will work if human beings who use it as guidance have the same perception to fulfill the sign's goal. In other side, some buildings have identity as signage system to guide and to give instruction to people who inside the building behave as they should do, for example in a church, no sign inside tells anybody not to eat or drink beer, or in another building, people could recognize which of the several entrances is the main entrance, and how to react, without any sign. In this case the human being has experience or cultural knowledge which guides him to act and to behave.

This study analyses the connection of human perception, space perception, with signage systems for designing space according how design could successful give people information. The knowledge is developed by observing and analyzing determinant factors, which develop the information system factor in space designing. The study proposed to develop a concept of designing information of the space. The design of space will consider to spatial human perception of signage system. The focus of the study is the way finding design, movement and behavior as a tool to measure the interpretation of human perception to the signage system, in the selected location or place, which represents the complicated signage system.

I. SPACE ORIENTATION

The perception of information refers to the brain organizing and interpreting sensory information. Until fairly recently, perception was considered by the school of psychology called behaviorism to be largely a passive and inevitable response to stimuli.

Today's cognitive scientists, however, explain perception as an active process in which the brain treats external stimuli as raw material to be shaped, aided by our experience. Perceptions are shaped by three sets of influences: the physical characteristics of the stimuli, the relation of the stimuli to their surroundings, and conditions within the individual. While the first two sets of influences are both related to stimuli, the last set of influences is the only reason that makes perception a personal trait. Factors that influence this frame of reference include learning experiences, attitude, personality, and self-image. Zaltman and Wallendorf found that there is a large body of literature on perception discussing how people's perceptions are influenced by various factors. These factors are people's moods or frames of mind, their physical abilities to experience sensation, their personalities and motivations, the social and physical context in which they perceive things, the social and physical context of the stimuli being perceived, and the physical composition of the stimuli.

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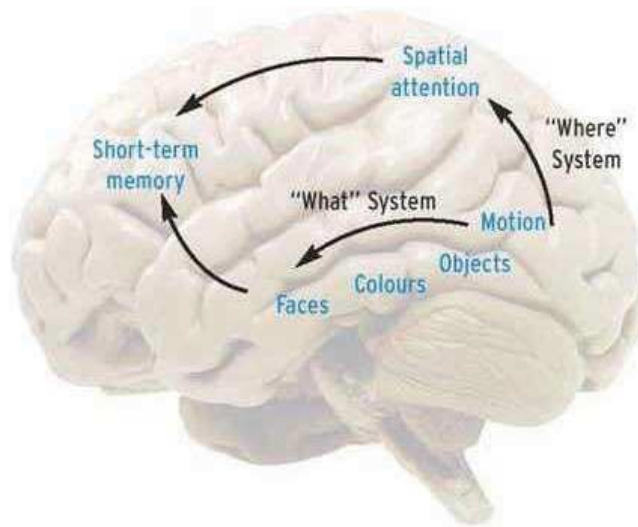


Figure 1. The brain will process all information which received from the surrounding

Perception is something that must be learned. As we recognize things in our environment we gather experience and this experience in turn colours our perception. Our perception of objects depends on our prior experience with them. Expertise sharpens our ability to notice details. The more we learn about objects and the more familiar they become, the more details we recognize.

Thus, we continue to make generalizations, but these generalizations get better and more accurate all the time. The human being has perception about depth and distance, this is important for movement and orientation in the environment. It is space perception. The human being has awareness of the relative positions of their own bodies and objects around them. They will recognize, learn and achieve the goal which is pursued by the system that works as information. Information such as maps, graphics, texts, or signs will guide the human being to do the action.

The signage systems are visually oriented information systems, consisting of signs, maps, arrows, colour coding systems, pictograms and different typographic elements. Signage systems differ from other methods of information presentation because they are typically used to guide people's passage through the physical world; road signs on a highway, station identification signs in a subway and overhead signs in an airport are all common examples of signage systems. The act of following a signage system is known as way finding, way signing or signposting. (Wikipedia)

The space as spatial space which is intervened by signage system, will guide people to have particular behavior about spatial. A signage system will construct human spatial behavior and human perception about space and signage will influence the designing space and designing information. A signage system influences human perception to behave and interact with space or environment.

Space is the boundless, three-dimensional extent in which objects and events occur and have relative position and direction. Familiarization, with and adaptation to a situation or environment;

In psychology it means awareness of one's environment as to time, space, objects, and persons. To orientate is a period or process of introduction and adjustment. To understand space in terms of spatial perception will be explained more easily in psychology than understood in physical terms. Psychological references to define space are used by architect or designer to give effect of spatial feeling and psychographics experience for the user.

The concept that space can have a quality other than emptiness is difficult to grasp. When a building is entered, floor, supports, walls, and a ceiling are seen, all of which can be studied

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and perhaps enjoyed, while the space, in the sense that one is accustomed to think of it, is void: the absence of mass, filled by air. Space will be “translated” in design as an empty space which makes the whole space having meaning. Space understanding in terms of understanding space in physical meaning could be found by humans in consciousness of perception. Humans can percept spatial environment and detect also assume the space element. The space element which is human could percept directly to measure the distance with reckon, understand and recognize the changing of environment, also recognize and realize the differences of environment and space.

The change of the environment surroundings refers to an orientation decision to reach a certain goal or certain place. For example, someone who is in a totally new environment had no clue of the place before, and without any knowledge or experience to find or to go to another place. He or she will try to combine or to bind together all the information as seen in the first time.

The brain will collect and sort the information which could be used for recognition and helps to make decision about orientation. Information which have been collected could be information in visual object. Information on visual objects in physics can be seen, touched, graped, and constituted in signs, symbols, maps, and names of places. The other information is physically only recognized by feeling, heard, and smells. For example the sound of cars, trains, beach, people speaking or even a bird could be the first information to have orientation.

The sound of vehicles indicate there close to the place might be a road. And the intensity of sound could indicate the size of road, which could be imagined. The wind, sun, and stars direction could be used to recognize and to decide an orientation in any place. The smell of delicious baked bread could be a “sign” there is a bakery shop or a home which gives a clue to orientate.

The other information is psychological feeling of the consciousness of being in certain environment in psychological. Conscious psychology could be a feeling of scariness, frightening, crowded, emphasized, free, narrow, wide, extensive, far away, and near.

Psychology consciously processed by the brain in based on the information which was felt at the same time. The feels is adaptation the surroundings become an impulse for the brain to analyst about the orientation on space. The other impulse process by the brain includes information that has been seen by the eyes.

The information could be colour, textures and shapes of objects around. The brain will process all information with filtering, arranging, put in order, classifying, categorizing information in preference and similarity. To explain the categorize in preference and similarity in orientation will seems clear in the example how to find a certain brand of milk in supermarket. Every product has been ordered and classified in similarity and preference of the type and kind of product. The order of products in the supermarket make the user easily get what he or she wants, because the order guides him or her to make orientation to find it.

The changed environment surroundings as consciousness influence by human capability to percept the psychological impulse as information and apply it to orientate the space. The psychology impulse for example could be captured by the eyes in colour, shape of space, and texture of space. Colour, shape and texture are visual objects which influence the psychology of spatial perception.

Perception of visualization are figured in object or situation and condition of space. The object to percept the space visually could be a building, landmark, or nature object. Building with its character or different from another buildings could be used as a sign to orientate. For example even the complex of building has the same shape, and there is one building in pink when the other buildings are Grey , it is made different, looks special, and is easily to recognized and to remembered as reference to orientate.

A building or even a house could be used as visual sign because it has a unique , different, and special in character and looks different and protruding in its environment. Landmarks could be a monument,

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historic building or a park which everybody knows about it. Known nature objects as visual sign could be a valley, hills, rocks, rivers, and lakes in their environment.

The entire visual object is already known as sign to have orientation in place for every body, even he or she never has been there before. With experience and knowledge humans could easily find orientation in reading a map, as cognitive skills.



Orientation in space is fundamental for all humans and most animals. Accomplishing goals often requires moving through environmental spaces such as forests, houses, or cities. Several mechanisms have been evolved in order to solve these orientation problems, including spatial updating, route navigation, and reorientation by landmarks and geometry. Human orientation capabilities are built upon these and other fundamental mechanisms.

Compared to non-human animals, humans demonstrate a greater flexibility during orientation tasks. They are able to apply various strategies to fulfill one orientation goal, such as navigating to a known location.

To make an orientation, we recognize our positions. First, positions can have an appearance that makes them recognizable by difference, nature or design. Second by, positions can be relative, recognizable due to their surroundings. Third by, positions can be labeled with identification signs. Positions can also be recognized by global positioning.

II. INFORMATION AND PERCEPTION

Human understood the spatial perception because the function of all human senses perceiving information in living environment. The information which caught by eyes, hearing, smelling, taste and the important is tactile, collected and processed as a complete information. The information could showed to him the orientation where he is now.

Information which has been already received percept already as the processing in our brain works as representation to guide the action. In this stage, information is an object which already manipulated, processed, filtered as data to do certain particularly action. Information in its wide meaning could be in different kind and type of media, different aim and goal, and different restriction and rules.

Information in its wide meaning is contained in announcements, advertisements, signs, symbols, and other kinds of media. People in a very new environment will try to find information to know a precisely where they are and how to make orientation of the place and to decide where they want to go. Information will give data to the human brain to be processed, to be percept with the filter of knowledge, experiences, and somehow culture.

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The same information could be perceived in different ways by people with different backgrounds. Information which is designed to give the same perception is often designed as a visual object.

Signage systems differ from other methods of information presentation because they are typically used to guide people's passage through the physical world; road signs on a highway, station identification signs in a subway and overhead signs in an airport are all common examples of signage systems. The act of following a signage system is known as way finding, way signing or signposting.

People who find themselves in unfamiliar environments need to know where they actually are in the complex, the layout of the complex, and the location of their destination in order to formulate their action plans. On the way to their chosen destinations, people are helped or hindered prior to their visit, the building's architecture and signage. The physical environment has a positive effect on how users perceive the way finding system, if it seems easy to use it or not.

Faulty sign design can cause navigation problems in unfamiliar environments. Some signs lack „conspicuous,“ or visibility, because lettering lacks legibility when viewed from a distance.

Others contain inaccurate, ambiguous or unfamiliar messages; many are obscured by obstructions or contain reflective surfaces, which hinder comprehension. Consequently, many people do not read signs--often it is easier to ask for directions.

Because way finding problems are not confined to signs alone, they typically cannot be solved by adding more signs. Instead, such problems can be unraveled by designing an environment that identifies logical traffic patterns that enable people to move easily from one spot to another without confusion. Signs cannot be a panacea for poor architecture and illogical space planning.

2.1 Building's elements as way finding information

Way finding could be designed with the Principle of human perception. Human perception is influenced by environment perception. The environment could be designed by setting the space with colour, texture, and change of space in its shape, distance, scale and with any other way of arranging lighting inside the room. The change of environment will influence the emotion and feeling of the user.

Way finding could be designed as unity with the existing objects, for example building or landmark. In architecture, buildings which are since the first step of designing concept, will have a certain function will have building characters, with accurate planning of the use of the rooms inside. With accurate planning of room, in some buildings does not need more sign, names or symbol for the explanation of function. Placement of the buildings elements will show directly and clearly how the building will function. It will show how it can accommodate the activities inside the building. The user of the building will easily find the way and will behave without need of explanation of sign.

The placement of buildings elements which shows how user could find easily where they want to go to some place and how to behave does not need additional signs. The example of placement of building element as a sign is placement of the main doors, except it has certain character to show; the main door is the main entrance, the placement in right position of orientation, will explain more to the user. The other placement is placement of back door, public area and private area use the arrangement of rooms, hierarchy, and others building elements.

Design of way finding is related with connection to each rooms, each place, and connection of room in place with building and the environment. The connection inside building will be also connected with the city or even more with other city and district.

A building which is built with special characteristics could work as sign to show the way and to recognize some place. A building could be a landmark which makes it easier for people to

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find the place, remember it, and to find the orientation. Except of building, another object for example a statue, monument, fountain, pond, plaza, park or even just the utility of city could be a guidance to get the orientation.

As a guidance to find orientation, we need the whole figure of the place and surroundings. This figure of place will be needed to decide the position; where am I, and where will I go. In this case the direction, maps, and sign are connected each other. In some special condition, for example in a small city or a village which the inhabitant know each place they want to go, and the movement activities are not really complicated, then the direction sign and map are not really needed.

2.2 Human Perception to Space Orientation

Space is both that which brings us together and simultaneously that which separates us from each other. Space is the essential stuff of very fundamental and universal form of communication.

The human language of space, whilst it has its cultural variations, can be observed all over the world wherever and whenever people come together.

Architecture organizes and structures space for us, and its interiors and the objects enclosing and inhabiting its rooms and facilitate or inhibit our activities by the way they use this language.

Of course good architecture does not actually waste space, it is just often space is needed in order to prepare us for change of mood, to establish relationship, to separate activities, and to suggest or invite appropriate behavior.



The concept that space can have a quality other than emptiness is difficult to grasp.

But spatial experiences that express something are common to everyone, though they are not always consciously grasped. One feels insecure in a low cave or a narrow defile, exhilarated and powerful on a hilltop; these are psychological and motor reactions that result from measuring one's potential for movement against the surrounding spaces, and the same reactions take root even in language ("confining" circumstances and "elevating" experiences are spoken of).

As a person enters the architect's space he measures it in terms of the degree and the quality of his potential for movement. The concept of potentiality is important, first, because the observer can anticipate where he may move merely looking about him and, second, because he can conceive movements that he cannot execute.

Of course, one does not use his eyes alone to feel spatial quality, because only the simplest spaces—a cubic room, for example—can be wholly experienced from one standpoint. In a complex of spaces, the observer walks about, gaining new sensations, seeing new potentials for movement at every step.

In order to understand our relationship with space, we first need to explore how we become aware of it. Primarily of course we see it, since it is largely evident to us visually. The processing of visual sensations into perceptions of the world around us involves a complex interaction of the eye and brain.

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Our own characteristics are such that our visual sensations largely dominate our perceptions, since over two-third of the nerve fibers that enter our central nervous system are from eyes.

Space perceived through the sensation of sound, smell, and even touch. Perception is actually more than just sensation. Perception is an active process through which we make sense of the world around us. We integrated experience of all our sense without conscious analysis. There was an incongruity between perception and expectation based on memory.

The perception of space will be trained as experience, when we walk through the space, experienced with the distance, different expression of the space, Expression of space could be just the transition of room to another room, function to another function, activity to another activity.

The connection between different place considered on how the function served, the activities connection, how long and how far the distance between different and continuity for the activity. The circulation room as hall or alley designed to be efficient and not make people feel tired and bored.

People using the environment bring with them unique abilities, limitations, and memories about navigating which must be accommodated by any overall wayfinding strategy. The number of repeat visitors, sight and mobility limitations, emotional state of the user, and whether the facility is entirely new or a revision to an early facility all must be taken into account when developing a wayfinding plan. Special needs populations, cultural and ethnic minorities and the elderly all must be able to use the facility with a minimum of assistance.

III. CONCLUSION

The architecture which surrounds in the human space environment influences human thought, and how to behave in space. Understanding the relationship between the environment and human perception of spatial is important to design human space. Human brain not only to interpret certain spatial characteristics in certain ways, but also plays role in making decisions based on those interpretations. Architecture designed space and surrounding could be impact to perceive the world, and interact within.

The interaction, the behavior and the thought to the spatial perception are the result of the sense impulse as information which processing by the brain.

As architecture gains greater and greater flexibility, it will get better at providing for such variations in occupant needs. In addition, architecture's ability to coordinate with other surrounding elements, like nature, also makes architecture a wonderful way to feed the thoughts via human senses.

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