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Visual Vision and Sensory Perception and its Relation to Interior Environment Design

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Abstract
Perception is the way that man communicates with his surrounding environment. It is a mental process in which knowledge is made human to the outside world by sensory stimuli, as well as sensory perception is not limited to the sensory characteristics of the shape are also understood but also include extensive knowledge that serves this form.
We are actually aware of only what helps us to respond to what we face in positions, or what satisfies us in our practical lives. Sensory perception is an auxiliary factor; this means that cognition is a response to sensory forms, symbols, and objects with the intention of doing the behavior.
The question is:
Does every Interior environment design seem perfect for every person who lives and deals with it?
The response depends on the nature of the external stimuli, the nature of the senses, the state of mind, and the direction of thinking and to previous information and experiences of man, who lives in a certain place and time.
The study focuses on the main differences which effects on the consciousness toward the interior environment spaces.
Keywords: Visual vision, Sensory Perception, Interior Place, Psychological Effects, Place and Time

1. Introduction

The sense of space and form is formed when a certain administrative relationship is achieved between man and his environment. That's why, although executives and designers routinely communicate their differing levels of dominance and position through furniture arrangement and decoration. Other settings are less deliberately coded, but usually without consciousness people through inclusion and exclusion of symbolic ingredients. Through study and analysis, designers and researchers can learn how people decode their existing environment to be better able to encode new ones with desirable and meaningful associations. Consciousness as a term is: a full activity of the mind and senses, as in waking life, and the awareness of something for what it is; is an internal knowledge. The term in Cambridge dictionary: It's the state of understanding and realizing something.
The state of being awake, thinking and knowing what is happening around you. In another word, it's the special mind reaction toward something. That cognition is a mental process determined by the influences that can affect the mind of the recipient without identifying the type of impact negatively or positively. It deals with the environmental data of the environment and the person.
From this point of view, the study will focus on the conditions that effect on people to make the variable consciousness toward the same interior environment, in order to know how to deal with interior design as a product for different levels of human consciousness.

2. Aim of the study

The study aims to focus on the psychological effects which have the main order on the sensory perception and the reaction toward the designed environment, to consider them as design determinants through the process of the design concept. The importance of studying the environment and the nature of the internal space, which is designed on the basis of what can be produced from the effects in the field of the receiver to create a general perception of the form and thus achieve the desired design concept.

3. Research methodology and analysis

The study focuses on the two main topics; Interior Design and Consciousness by analyzing each topic in order to find a relationship between them. Vision and philosophy of this study will be substantive analytical in the approach within the limits of the research problem on one hand, and based on assumptions derived from objectives, on the other hand. This led to conduct the study in four levels as follow:

- Interior design
- Visual vision and Perception.
- Features affecting on Sensory Perception.

- Conclusions.

4. Interior Design as a term

Interior Design in dictionary refers to the design and coordination of the decorative elements of the interior of a house, an apartment, an office, or other structural space, including color schemes, fittings, furnishings, and sometimes architectural features. It's about how we experience spaces. It's a powerful, essential part of our daily lives and affects how we live, work, play, and even heal. Comfortable home, functional workplaces and beautiful public spaces, that's interior design effects, and on the other hand, the process of designing any interior environment is a matter of organizing to make one unit conceived through total vision, which makes determinate design concept of an environment that people could live with a good influence, which is the criterion key in evaluating design success.

The importance of interior design stems from its direct relationship with our life, because we live, eat, drink, worship and have fun inside the product. Our ability to work, our health, our mental state, and our happiness depends to a great extent on our environment, including housing, workplaces, and places of worship, tools, equipment and furniture. Any design concept is useful and creative when it depends on understanding the laws of nature and human behavior and needs, in addition to his ideas and creative alternatives.

4.1 The difference between Space & Place

The two terms have provided the building of an intellectual and disciplinary enterprise that stretches back many centuries. The theoretical specification of space and place has remained a matter of some dispute, being transformed as new ways of 'thinking' have developed. The humanistic tradition; that has been developed, conceptualized place as subjectively defined. As such, what constituted a place was seen to be largely individualistic, although attachments and meanings were often shared. In another word, a place meant different things to different people.

- **Space**:

Is a term that usually used in architecture, in the form of absolute, relative and relational (cognitive), and the absolute space is an understanding of space as a distinct, physical and imminently real or empirical entity. Traditional regional studied the empirical entities, dependencies or vertical connections between humanity and the environment within the 'container space' of a particular region. The relative space has the location of, and the distance between, different phenomena (horizontal connections) as the focus of architecture inquiry (Holt, 1999). The meaning of relational (cognitive) space is that space and place are intrinsic parts of our being in the world defined and measured in terms of the nature and degree of people's values, feelings, beliefs, and perceptions about locations, districts, and regions. Relate to other people and the physical environment. Thus relational space is consciously or unconsciously embedded in our intentions and actions (Knox, 2004).

- Place:

Place seen as more subjectively defined, existential and particular, while space is more universal, more abstract phenomenon, subject to the scientific law. The humanistic concept of place is concerned with individuals' attachments to particular places and the symbolic quality of popular concepts of place which link events, attitudes, and places and create a fused whole. It was concerned with meaning and contrasted the experienced richness of the idea of place with the detached sterility of the concept of space. The idea is that place is an emotional bounded area, often the dwelling-place, to which an individual or a group has a strong emotional relationship. People can even derive their personal identity from it. So Place is a portion of urban space, sometimes defined as, territories of meaning (Holt, 1999).

Places are made by people: we make places and probably invest as much effort in making the supposedly pristine places of Nature as in cities or buildings. Social processes (difference, power, inequality, and collective action, happen through the material forms that we design, build, use, and protest (Gieryn, 2000).

4.2 The relation between people and interior place design

Interior design, whether professional or not, is an aspect of life that is impossible to escape. In addition to the domain of one's own home, the interiors of the homes of friends and relatives, offices, stores, restaurants, schools, hospitals, vehicles, and every other sort of place where modern life has lived make up the modern world as we know it (pile, 2005).

The human need for expressive aesthetic values is no less important than other functional needs. The design process is actually the process of inventing something or idea and employing it in our daily lives. It is an innovative addition to the revitalization of life, management of our lives and our comfort. The process of innovation does not come on its own or in a vacuum, but is the result of the needs and requirements of living, which we seek to develop to achieve the most comfortable work spaces in terms of aesthetic and expressive.
The designer, consciously or unconsciously, decides about time to begin the project, designer expected to begin the design with the most important issues mind, but it's not always this way. Some designers begin the design process with the coziest elements of the problem. Some of them move from whole to details, and some of them do it from details to whole. In most cases, progress that shows the work steps will be chosen. On the other hand, feelings of a person toward any interior place environment happens when there is a living relation between them, and the person as a design user will give a react as a feedback . That's mean there is a continuous connection between designers and people who use the design, by the feedback about the design, and that's why the interior design and any design process always goes through a continuous life cycle (Fig.1).

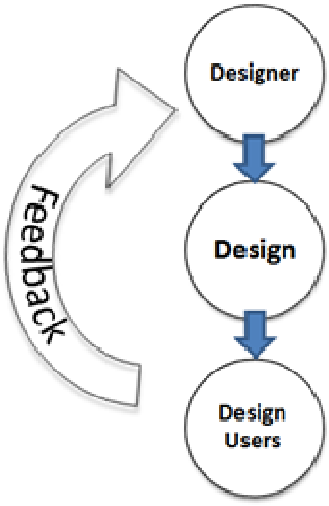

Figure1. Design process always goes through a continuous life cycle

5. Visual Vision and Consciousness

The study will focus separately on visual vision and consciousness, in order to realize the connection between each one and the interior place environment.

5.1 Visual vision

Visual as a term indicates to a small patch on the image (array of pixels) which can carry any kind of interesting information in any feature space (color changes, texture changes, etc.) (Fig.2). It is the clustering result in the feature space (centers of the clusters), more than one patch can give the nearest information in feature space so that we can consider it in the same term (Wikipedia, 2017).

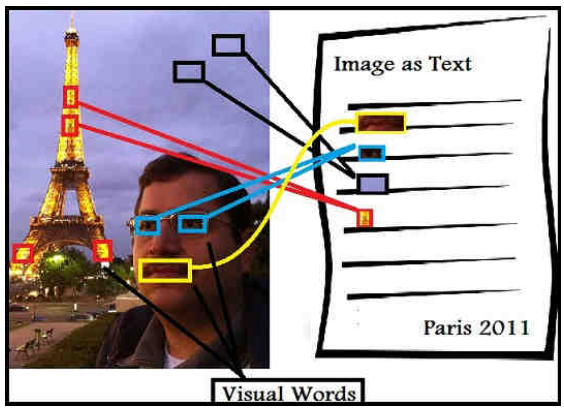

Figure 2. Transforming image as, visual words, into text images

While vision deals with another level of terminology that we see with our brains, not with our eyes, light from direct sources and surface reflections in the environment enters the eyes and impacts the retina. Signals produced by the retina's rods and cones are then transmitted to the brain, which influenced by our psychology, translates that information into what we know as our "visual experience" (Hulda, 2015).

All studies consider lighting design is a key to the visual environment: Using natural and electric lighting to illuminate objects in a space while minimizing negative effects such as glare and low contrast is beneficial to all sighted persons. Light and contrast in the visual environment are equally important for persons with low vision to see and understand the environment around them.

5.2 Visual Simulation in Design

Visual simulations that depict existing or potential environmental conditions are based on the number of graphics principles. These principles enable observers to perceive three-dimensional relationships from two- dimensional representations. This sensory shift from a drawing of a photograph to an awareness of a real environment is based on perspective principles described as surface layout. That refers to surfaces in terms of color and texture (Gibson, 1979).

The visual simulations are actually perspective clues that are present for stationary objects viewed with only one eye, also referred to as monocular perspective. The clues pertain to texture, size, linearity, aerial, upward location, texture shift, continuity, and transition (Sanoff, 1991).

- **Texture**: When a surface gradually becomes denser, it appears to recede from the observer.(Fig.3). When a surface texture is gradually revealed (accretion) or occluded (deletion) over time at the edge of another surface, there is unambiguous evidence that the former surface is farther away for the perceiver than the latter surface (Gibson, 1991).
- **Size**: As objects decrease in size, they appear to recede from the observer (Fig.4).
- **Linearity**: When objects equal in distance from each other appear to converge to a point, they recede from the observer (Fig.5).

Figure 3. Texture of the wall affects the visual simulation

Figure 4. Size of windows and chandelier effect on visual simulation

- **Aerial**: Objects lose detail when their distance from the observer increases (Fig.6).
- **Upward location**: The horizon line appears to rise as the observer's distance increases (Fig.7).

Figure 5. Beams at the ceiling appears to converge to a point

Figure 6. Loosing details when the distance increases from the observer

- **Texture shift**: Changes in texture density give the appearance of an occluding edge (Fig.8). Typically, occluding edges are revealed with the movement of the perceiver, and relative movements of environmental features.

  There are several significant implications of this phenomenon. First: the occluding edge of the closer surface in only visible over time. Second: for this reason, the occluding edge is a relational property of the environment-organism processes. Third, perceiving an occluding edge includes an awareness of the now- hidden the surface and to be revealed surface of the farther object (Gibson, 1991).

Figure7. Horizon line rises when the distance increases

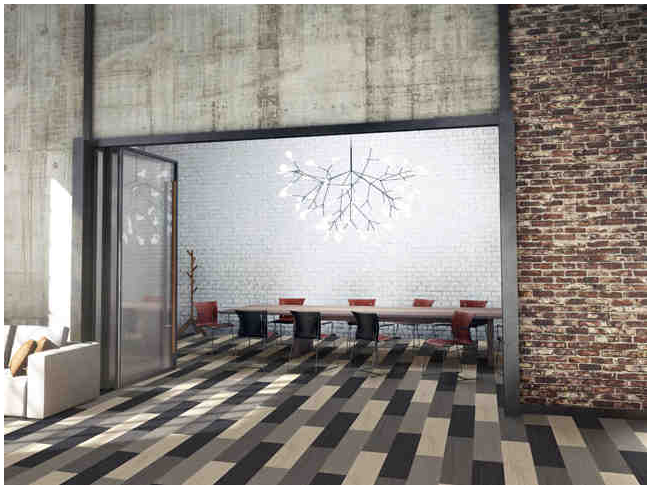

Figure 8. Texture shifting gives the appearance of the edges

- **Continuity**: When objects overlap, the simpler form is perceived as being nearer to the observer. (Fig.9)
- **Transition:** Sharp contrasts in light and shade reveal an edge.(Fig.10)
- **Motion** provides an additional perspective clue. This visual information can be depicted by a sequence of pictures seen from slightly different points (Hochberg, 1978).

Figure 9. The spiral stair appears near to the observer

Figure 10. Light and shade reveal the edges

6. Perception as a Term

Perception in Cambridge dictionary means a belief or opinion, often held by many people and based on how things seem. It's the quality of being aware of things through the physical senses, especially sight. On the other hand, perception indicates to someone's ability to notice and understand things that are not obvious to other people. While in Oxford dictionaries perception means: The ability to see, hear, or become aware of something through the senses. It's the awareness of something through the senses, and it's the way in which something is regarded, understood, or interpreted. All the definitions indicate the relationship between perception and understanding through senses.

6.1 Visual Perception

Visual perception is the ability to interpret the surrounding environment using light in the visible spectrum reflected by the objects in the environment. The resulting perception is also known as visual perception, eyesight, sight, or vision (adjectival form: visual, optical, or ocular). The various physiological components involved in vision are referred to collectively as the visual system, and are the focus of much research in linguistics, psychology, cognitive science, neuroscience, and molecular biology, collectively referred to as vision science (Wikipedia, 2017).

There is an essential difference between both terms. The major problem in visual perception is that what people see is not simply a translation of retinal stimuli (i.e., the image on the retina). Thus people interested in perception have long struggled to explain what visual processing does to create what is actually seen. In another word, the process of visual vision wouldn't have the same visual perception for all.

An analysis of vision must begin with the task at hand, that of guiding action and detecting environment properties. We should bear in mind that different solutions have been arrived at over time, chambered mammalian eyes with retinal images. Framing the analysis of perceiving in this way brings to the forefront a concern for the nature of the perceived environment before considering the anatomical structure of the eye (Gibson, 1991).

6.2 Sensory Perception

Sensory Perception is the means by which man communicates with his surroundings. It is a mental process in which the human knowledge of the outside world through sensory stimulation, as well as that the perception is not limited to the sensory characteristics of the form only aware but also includes extensive knowledge serves this form. "Response to this situation has emerged in higher education in two ways. Most architecture schools now have at least one or two courses on architecture and human behavior and introduce problems in the design studio which encourage students to develop skills for incorporating behavioral and cultural factors in the design process" (Jon, 1974).

The sense of space and shape consists in achieving a specific cognitive relationship between man and his

environment. In other words, cognition is a mental process that is determined by the influences that can affect the mind of the receiver without specifying the type of effect negatively and/or positively, dealing with the place environmental data of the environment and the body of perception (Fig.11).

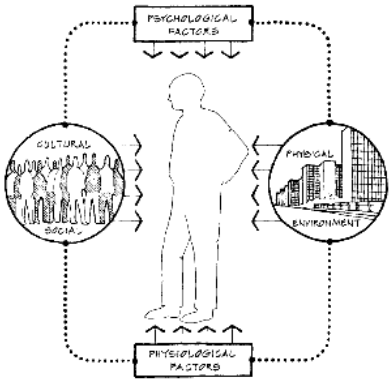

Figure 11. Factors effect on the relationship between man and the physical environment (Jon, 1974).

7. Factors that effect on the sensory perception

Environment –behavior studies in architecture is a contemporary approach to the traditional humanistic purposes of architecture .It is a view of design and of the environment which places the values, needs, and preferences of users at the forefront of the design process.

It is a philosophy of design which has as its goal the satisfaction of human needs and the elimination of environmentally induced stress and it is founded on the belief that good design and great buildings are always ultimately judged by how conducive they are to a human existence which is alive, more human, and more capable and free (Moore, 1979).

There are a number of factors and special features that affect the sensorial perception toward any interior place environment, and lead to satisfaction due to accepting the environment or not. These factors could be categorized as follows:

7.1 Physiological Environment

It is one of the factors that influence on perception, cognitive performance and design behavior, design concept and the material used depending on several limits, such as the wether temperature, humidity and the nature of the climate in general

7.2 Social Environment

Social environment is within the framework of social formation in the society, which represents the interactions between the members of the group and their implications on the behavior of the individual and the perception of the whole place environment and way of thinking.

7.3 Culture

Culture influences cognitive behavior through the process of socialization, which is formed through learning the language, traditions, customs, and values. As a result, all have a direct impact on the nature of designs that are accepted and recognized in all aspects.

The educated recipient can understand certain aspects that limited educated could not be able to perceive, and/ or he may consider them negatively. In general, culture is relative to influencing societies for different concepts and the legacies that an individual can adopt.

7.4 Personality and Social composition

The social composition of a man within a group usually accumulates within a particular environment and circumstances during different stages in which affects directly on his personality and interests. The groups affect not only the actions of the individual, but also the way he perceives the whole environment and the way he thinks about it. This necessarily surrounds him at least in terms of his opinion toward aesthetic and symbolic values. For example, a person who lives in the countryside is dominated by the taste of rural society because he born and lived within such special conditions that consistent with rural traditions and customs. While a person who lives in the city will have different opinion and different perception abilities.

7.5 Physiological Person abilities

The physiological abilities of the interior environment's user could individually effects on the design's perception; on the

other hand it explains how the user thinks about that design and how to interact. For example, Normal person can deal with different spaces (living spaces, work, sleeping, etc.) designed for typical people appropriate human body. In the absence of any organic dysfunction in the individual, a problem will arise in dealing with the design and need solutions. So the behavior of the individual with the design as a general idea must be consistent according to the compatibility that is assumed his existence between the mechanism of performance of space and the person who deals with it. Otherwise, modifications should design the space to be suitable for the impossibility of dealing with the designed environment.

8. Conclusions

- Visual vision and visual perception give an initial impression of interior design but can not be adopted as an assessment. Real evaluation is through the perception of the actual user of the design. Visual cognition is intertwined with vocabulary in terms of color, proportions, texture, and size, but sensory perception deals with user behavior and acceptability and satisfaction with the designed environment.
- The sense of space and interior design arises when a specific cognitive relationship occurs between the person and the environment he uses. Perceptual perception is a mental process that deals with the environmental data of the environment and the body that perceives and affects the user accept towards design, which shows a negative or positive impression towards it.
- There must be a harmony between the design of a space and the users' behavior in order to reach the level of acceptation and satisfaction.
- Designers must contact the design users before beginning with the design process because design users will have their own sensory perception and reactions toward the design depending on the differences in their physiological environment, social environment, culture, personality and social composition and physiological person abilities
- Studying the feedback toward any interior design is very important because it is the true evaluation of the design in order to keep developing process due to the behavior of the design users at the certain place and time.

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