

# Perception and its role in increasing the competence of an Architectural product

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## Abstract

Perception is considered one of the important stages of the sense of belonging to the surroundings, because people cannot interact with the surroundings or use them optimally unless they perceive all their material, social and cultural aspects. Then people form a vivid image which inspires them to behaviours which suit and are compatible with these surroundings. In this case, this perception is static and innate, and according to it a building is evaluated. Procedures of evaluation of material, moral and physical aspects of a building depend on how we perceive these procedures. However, this evaluation, according to that perception, is not sufficient as it, in this case, results in failure to meet the optimal (maximum) needs of the building users. This occurs owing to the absence of some of the important aspects of the perception process, the most important of which is the possible change in perception within the framework of the new and precise requirements of users, this change being either in the

architectural product itself or in the perceiver, resulting in interactive, variable perception. This has called for highlighting the necessity to turn the static perception of the perceiver into interactive, variable perception, and for highlighting the more effective role of variable perception in increasing and evaluating the competence of an architectural product, which is the chief aim of the research, through theoretical and analytical methodology where a group of examples are chosen and classified into groups, each of which helps send their own messages of influence. These messages will be a means of directing interaction and change of the perceiver's perception, resulting in the relation between static perception and interactive perception, then in increasing the competence of an architectural product.

**Key words:** Static perception, interactive perception, architectural product.

## **1. Introduction**

Perception is considered one of the important stages of consciously perceiving the surroundings, in general and in detail, by identifying and describing these surroundings rationally, in order to reach one of these cases: acceptance or refusal. This will define the subsequent sensations and feelings (satisfaction, hatred, aversion...).

So, in summary, the perceptual process is necessarily defined between two media: one is purely intellectual, the second is formative and material. The relation between these two parameters is formulated, sometimes, in a complicated way and, sometimes, in a simple way; and maybe both ways at the same time. And therefore, this relation lies in the concept of perception with all its general media, which obliges us to define this concept in a broad-spectrum way, in order to reach the space which exists within the area of research, at architectural and constructional level.

## **2. Research Methodology**

### **2.1 Study Problem:**

The problem lies in the absence of some of the important sides to the perceptual process. The most important one is change in perception within the framework of the new and precise requirements of end users, and therefore resulting in relative failure to direct architectural behavior to deliver the optimization of users' needs.

### **2.2 Objectives of the Study**

To turn static perception which is not effective enough in evaluating the competence of architectural work into interactive perception which is more effective in increasing the competence of architectural work.

### **2.3 Methods**

Theoretical research: involves sides connected with the research subject: the perceiver, the architect, and the architectural product.

Analytical research: includes general and architectural examples.

## **3. Definition of perception**

In psychology, the term perception is applied to the mental process by which you make sense of the outside tangible world. This is done by receiving sensations and feelings. These are explained,

interpreted, and given a meaning, logically and mentally. It is, here, a kind of response, which translates into some kind of intellectual and material behavior..(fig 1).(Yusef Muradm,1978)

#### 4. Theories of interpretation of the perceptual process

There are two theories interpreting the perceptual process: (Salma Ashraf,1998)

The first theory believes that perception is an acquired process in which an individual gradually learns identification and interpretation of things.

The second theory believes that perception is an innate process. An individual is born with it.

#### 5. Factors influencing the perceptual process

The perceptual process can't occur without the availability of the perceived object and the perceiving individual. And, in order for perception to be right, a balance between these elements must exist. That is why people perceive locations, things and places very differently. These differences depend on many factors:

##### 5.1 Factors connected with the circumstances of the perceptual environment:

The dialogue between the perceiver and the subject forming the environment is direct, intensive and deep. The elements of this environment include:

- **Light:** varying levels of lighting influence the visual process, then the perceptual process. (Table 1.).(Izzat Abd AlMun'im,1992)
- **Influence of the environment on perception:** an object doesn't exist in emptiness. It is surrounded by a natural or artificial environment. Perception of how something looks depends on the contrast between it and its background. The less the contrast, the less the perceptual competence, the bigger mistakes in evaluating the identity of things.(Table 2)(Shafiiy, prof Zakiya Hasan,1998)
- **Speed of movement:** perception of objects varies according to speed of the movement of the perceiver (still, walking or moving in a car). Slow movement gives the opportunity to examine, check and understand the perceptions and their elements while quick movement shows objects to be pale surfaces. (Table 3).
- **Angle of vision:** the better the possibility of seeing an object from several angles, the better the opportunity to perceive it in consequence of the bigger number of pictures defining it.
- **Distance of vision:** in order to perceive a product, a certain distance is needed to help perceive it in general and a certain distance is needed to help perceive its details.
- **Duration of vision:** boundaries of perception depend on the time taken by the perceptual process, and therefore, the opportunity to perceive objects increases when duration of vision increases.

##### 5.2 Factors depending on the perceiver:

These elements depend on the individual himself, his experiences and relating memories, his needs, motives, interests and on the rules regulating cerebral responses responsible for perception. These elements include the following:

- **Senses:** senses play an important role in perceptual process. How fast they are influenced by the surrounding effects varies. The senses of sight and hearing are influenced the fastest. And

therefore, a person's relation to their surroundings is considered the function of each of his sensory systems, in addition to how these systems adapt to the sensory response.

- **Culture and past experiences:** people's perception varies depending on their cultures, traditions and beliefs. Culture plays a big role in defining the symbolic values influencing a person's concepts, perception, views on what is going around them. Culture is considered one of the factors influencing a person's perception of architectural and constructional products. It has a big influence on all aspects of life –customs, traditions, behaviours, lifestyles, etc.
- **Imagination:** it helps perceive an object as a whole. It also helps restore and add what the perceived object lacks. However, past experiences and imagination must not control objective perceptions in order for perception not to lose its most important property: acquire knowledge of the reality of the outside world.(Khaled Ahmad,1994)
- **Psychological state and mood:** a person's psychological state influences their perception of objects around them. The same element is perceived by people differently, depending on their psychological state. A pessimist sees whatever they perceive as a bad omen. An optimist sees things the other way round. In addition to that, the same person's perception of the same object can be different on two different occasions. (Azza Muhammad Siddeek,2003)

From what has been said it becomes clear that perceiving an object and giving it a certain meaning vary from one person to another due to their different experiences, cultures, directions, imagination and psychological state. These differences directly influence the perceptual process.

**5.3 Factors dependent on a perceived object:** these factors are divided into material and moral distinguishers. They heighten perception and draw's people's attention.

**a) material distinguishers:**

**a-1: An object's relation with the surroundings.**(Lunch, K,1960)

- Domination and control: by being different in size. For example, a big element among small ones, or a high one among short ones. as shown in(fig 2)
- Contradiction and contrast: when an object has a colour or a shape different from what is in its surroundings.As shown in (fig 3).

**a-2: Optical properties defining an object:** (Izzat Abd AlMun'im,1992)

- overall shape: simple shapes, especially the known geometric shapes,are some of the easiest things which a human mind perceives.
- purity of colours:the purer or the commoner an object's colours are, the easier the perceptual and identification process is.
- surface properties: the glitter or glow of a surface and the uniqueness of its texture are factors influencing primarily the visual process, and then the perceptual process.
- properties of the optical element: this element depends, from the perspective of architecture, on the configurational dimension of buildings. It represents the level of architectural expression. Lynch explained that the optical property of objects, in construction, gains them high competence to evoke a powerful, mental image in the perceiver, which he called "the ability to imagine things". This property depends on the properties of the shape and volume of the optical element and on what meanings this element bears. Objects, which are distinguished from, or contrast with the surroundings, are usually easier to be perceived.

- location of the optical element: in architecture, this element represents the urban dimension of a building. The location plays a prominent role in making the building prominent. That's why harmony with the location and its material and natural elements must be respected. This is done by taking into account the distance of vision, the angle of vision, and the principle of expectancy and repetition of optical elements. (Sami Sabri).

#### **b) value of the perceived object and its moral distinguishers:**

If the perceived object has material, historical, social etc. values holding associations in the viewer's mind, this will make them look at it more carefully, and therefore, perceive it.

From what has been said it becomes clear that the perceptual process depends on the perceived object and its surroundings (the space and time surroundings), on the personal factors, on the cultural and civilizational motives and backgrounds of the person perceiving these objects, and on the factors depending on the perceived object. All these share the required meaning seen in the perceptual information and data. This meaning forms a vivid, mental image of these objects.

### **6. concept of static perception**

A person deals with his surroundings, sensing them through his senses. They broaden his experience and his perceptual concepts. This deal leaves in him and his mind a mental image specific to every environment or medium he deals with. This image's influence lasts long. Through this "stock", he deals with anything facing him, or having had any past connection with him. He compares these things with the image, information, and the cultural stock containing his past experiences, culture, social values, traditions and customs. Through this comparison, he judges this experience formally, emotionally and ideologically. The form leads to general influence. Admiration, love, familiarity and belonging influence his emotions. Through ideology the image enters the frame of his memory and his past and subsequent experiences. He deals with this image objectively and in a way that is commensurate with the past and current circumstances. A static relation is formed, called static perception.

### **7. interactive perception**

After considering the term of the concept of perception, its mechanism, and the factors influencing it. And after defining static perception and the factors influencing it and its relation with the architectural side, questions arise: Can a person's static perception, formed by his past experiences and culture, turn into interactive perception? What is the concept of interactive perception? How to reach it? What is its relation with the architectural side? What is its relation with the architectural product? Therefore, we will come up with another concept of perception. It is:

#### **7.1 concept of interactive perception:**

A person's perception of what he sees, according to the French philosopher Bonty, never forms fully. It changes continually as a result of internal motives and needs, and goals and interests in life. He describes them as constantly developing and renewed. A lot of the options and examples, available really and virtually, form cases assisting this idea and proving it. In these cases interactive, changeable perception is sometimes a "noun" and sometimes an "adjective". It can also form a succession of static perception and changeable perception.

For the mechanism of the interrelation between improvisational, static perception, interactive, changeable perception, and an architectural product, it is necessary to define an architectural product. It is the formal, structural, historical, colour etc. identity representing the first side issuing a sense. It also forms the subject of the rational, distinguishing research (later: perception), and therefore, it forms the other constant in the research.

## **8. Mechanism of the interrelation between static perception and interactive perception, and their relation with an architectural product**

When, as a result of past experiences and culture, a person's perception forms, a static relation between a perceiving person and an architectural product emerges, because he forms his idea according to past experiences and information.

This above-mentioned relation is an ebb-and-flow relation, sometimes interactive, sometimes static. This is what the research explores (movement zone). Later we will, through analysis and induction, work to define the reasons for staticity and changeability in order to reach a mechanism for making interactive perception.

The reason for this might be:

### **8.1 change and interaction of the relation by using stimulants to and influencers on the perceiver:**

The static relation between a perceiver and an architectural product can turn into an interactive, changeable relation by making some changes or using stimulants in the perceiver. These changes and stimulants influence his perception of an architectural product. These stimulants are at several levels. They are as follows:

a-using influencers at intellectual level: They include:

-influencers at cultural level: a person's perception of an architectural product varies according to his cultural level, to whether he is a specialist or a layperson.

-influencers at psychological level: a person's perception of an architectural product varies according to his psychological state. He can like it and can be thankful when being in a positive psychological state. And he can be annoyed when being in a bad psychological state.

b-using influences at material level: they include:

-influencers at social level: a person's perception of an architectural product varies according to his social level. A villager's perception is different from a city dweller's.

-influencers at economic level: a person's perception of an architectural product varies according to his economic level.

### **8.2 change and interaction of perception by making changes to an architectural product:**

An architectural product can be classified into various groups. External stimulants can influence them separately or as a whole, depending on the state of each product. They include the special configuration of an architectural product, its detailed elements, its volumetric components, and the neighbouring buildings influencing it. Influence on one of these groups or on any of its partial elements can cause a change and interaction in static perception.

**8.3 change and interaction of perception by making changes to the surroundings of an architectural product:**

These surroundings include natural elements like water elements, terrain, vegetation elements (tree, flowers), and artificial elements like lighting, materials, parasols, backgrounds showing the building more or less prominent, neighbouring buildings and anything which can be contained by the surroundings or can be added to be a stimulant to change perception and its interaction.

**9. Projection of the interrelation between static and interactive perceptions on various examples:**

The relation between static and interactive perceptions can be clarified by projecting it on a group of architectural examples selected according to groups classified according to the parameters which help achieve the desired end and show how effective perception, in case it interacts, in increasing the competence of any product. Like the following:

| Perception chart | Perception parameter  | Methods of creating and interaction of perception  | description  | example |
|------------------|---|--|--|---------|
|                  | Making a change to the perceiver                                  | By providing the perceiver’s mind with information: built on the 100th anniversary of the French Revolution. Weighs 1000 tons of iron. Was the highest building in the world for 41 years.   | Metal tower. Located in Paris. One of the wonders of the world. Height 324 m. Built in 1887. |         |
|                  | Making a change to the level of detailed elements in the building | By making a change to the building. This is done by adding a detailed, partial element to the façade of the building, in a way different from the common form of openings in the façade. And in a color contrasting with the colour of the building, making it more prominent, and therefore, perception interacts with the perceiver. | Predominantly black residential building   |         |

| <table border="1"> <caption>Perception Data for Building Configuration</caption> <thead> <tr> <th>Configuration</th> <th>Perception</th> </tr> </thead> <tbody> <tr> <td>configuration</td> <td>4</td> </tr> <tr> <td>lower part</td> <td>5</td> </tr> <tr> <td>upper part</td> <td>4</td> </tr> <tr> <td>configuration colour</td> <td>3</td> </tr> <tr> <td>configuration</td> <td>4</td> </tr> <tr> <td>configuration</td> <td>4</td> </tr> </tbody> </table>   | Configuration | Perception | configuration     | 4 | lower part        | 5 | upper part           | 4 | configuration colour | 3 | configuration | 4 | configuration  | 4  | <p>Making a change to the level of the mass and configuration</p>  | <p>Creation of perception in this building is done by: contrast of materials used in configuration. Contrast of raw materials and their texture. Different colours of the materials. Ratio of the lower part to the upper part.</p> | <p>Colon building in China. An office building. Materials and form of the lower part differs from its upper smooth transparent glass part.</p> |   |  |  |
|--|---------------|------------|-------------------|---|-------------------|---|----------------------|---|----------------------|---|---------------|---|--|--|--|---|--|---|--|--|
| Configuration  | Perception    |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| configuration  | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| lower part   | 5             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| upper part   | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| configuration colour   | 3             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| configuration  | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| configuration  | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
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| Configuration  | Perception    |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| configuration  | 3             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| components   | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| colour addition  | 3             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| different materials  | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| configuration  | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| <table border="1"> <caption>Perception Data for Building Configuration</caption> <thead> <tr> <th>Configuration</th> <th>Perception</th> </tr> </thead> <tbody> <tr> <td>A) standing alone</td> <td>3</td> </tr> <tr> <td>B) standing alone</td> <td>3</td> </tr> <tr> <td>neighbouring objects</td> <td>4</td> </tr> <tr> <td>colour</td> <td>5</td> </tr> <tr> <td>openings</td> <td>4</td> </tr> <tr> <td>anatomy</td> <td>3</td> </tr> <tr> <td>harmony with neighbour</td> <td>5</td> </tr> </tbody> </table> | Configuration | Perception | A) standing alone | 3 | B) standing alone | 3 | neighbouring objects | 4 | colour               | 5 | openings      | 4 | anatomy  | 3  | harmony with neighbour   | 5   | <p>making a change to the neighbouring building</p>  | <p>Perception of building A is created by the fact that there is a neighbouring building with the following specifications: an ordinary parallel rectangular shape helps make the cylindrical shape more prominent. The neutral grey colour helps make the red colour of the tower more prominent and dominant. Regularity in arrangement of the openings of the neighbouring</p> | <p>The Hotel Vera in Barcelona. A red tower. An asymmetric cylinder. Randomly arranged openings. It is located near a neutral grey building.</p> |  |
| Configuration  | Perception    |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| A) standing alone  | 3             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| B) standing alone  | 3             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| neighbouring objects   | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| colour   | 5             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| openings   | 4             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| anatomy  | 3             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |
| harmony with neighbour   | 5             |            |                   |   |                   |   |                      |   |                      |   |               |   |  |  |  |   |  |   |  |  |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  | building helps make the randomness of the tower openings more prominent. The red colour in the neighbouring building contributes to the harmony of the two neighbouring buildings. |  |  |
|--|--|--|--|--|

From these examples it is noted that perceptual interaction of a perceiver is possible either by making a change to the perceiver, materially and morally, or to an architectural product by defining certain groups in order to classify architectural examples in them. These groups represent the parameters specific to a product. Through them, creation and interaction of a person's perception is possible. These groups are as follows: mass and configuration parameter. Detailed elements parameter. Volumetric configurations parameter. Masses and surroundings parameter.

From studying the perception graph of each example, it is noted that perception can be static and then turn interactive in case a change is made to each of the above-mentioned parameters or to a few parameters at the same time. It might turn static again or it might continue changing and interacting, positively or negatively. Now, we can conclude that the longer the period of positive perceptual interaction between a perceiver and an architectural product, the more the competence of a building. And therefore, the desired goal of perceptual interaction is achieved.

Therefore, perception is an important factor to evaluate the competence of an architectural product. It is possible, through studying its sides with their parameters, to reach a building with a greater competence, which suits people, and therefore, achieves belonging.

## 10 Conclusions and suggestions

### 10.1 Conclusions:

1-according to theories interpreting perception, perception can be a gradually acquired process. It can also be an innate process.

2-perception is influenced by factors dependent on the conditions of the perception environment.

3-static perception is defined as how a person deals with what he faces in the surroundings according to his past experiences.

4-interactive perception is defined as change of perception according to constantly renewed and changeable motives, needs, and goals.

### 10.2 Recommendations:

1-it is necessary for perception to interact and change in order to reach a more competent architectural product.

2- it is necessary for perception to interact by "invading" a perceiver's memory with information and data which help increase the competence of a product.

3-it is necessary to influence an architectural product, with all its main parameters, which contributes to perceptual interaction in the perceiver, and therefore, we can conclude if the competence has increased or decreased.

4-making changes to the surroundings and neighbouring buildings considerably helps increase perception and its interaction with the building, and therefore, increase its competence.

5-it appears that perception is mainly dependent on the perceiver's opinion about the building, and therefore, the competence of this building is defined according to the perceiver's opinion. That is why the vital necessity to optically increase the competence of an architectural building helps achieve this person's belonging to the surroundings.

**Figures:**

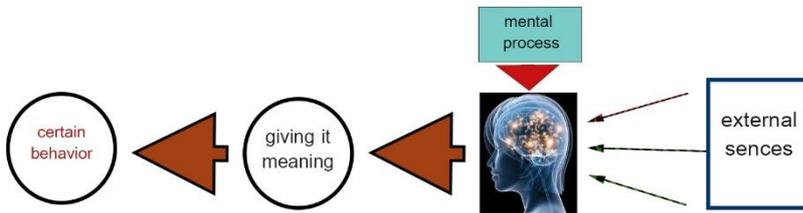


Figure (1) clarifying the perceptual process

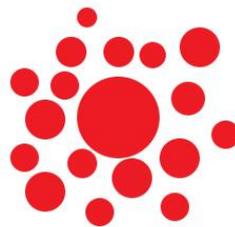


Figure (2): The central circle dominates as a result of increasing the size to draw more attention

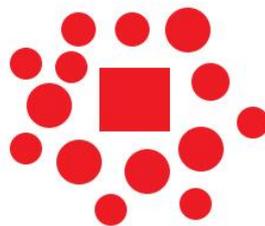


Figure (3): Uniqueness of the square and its different shape facilitate its perception

**Tables:**

**Table (1) shows the effect of light on perceiving a building**

|   |  |                               |
|---|--|-------------------------------|
|  |                      | Effect of light on perception |
| Adequate lighting urges the eye to perceive a building and its details            | Poor lighting or the absence of light makes you omit some details, and the mind perceives the outlines |                               |

**Table (2) shows the effect of the surroundings on perception**

|   |  |  |
|---|--|--|
|                                       |                       | The effect of the surroundings on perception |
| Contrast between the colour of the building and the colour of the surroundings helps increase the perceptual competence | There is no contrast between the building and the surroundings which decreases the perceptual competence |  |

**Table (3) shows the influence of speed on perception**

|  |   |  |
|--|---|--|
|   |  | Effect of the surroundings on perception |
| Slow movement gives the opportunity to examine, check and understand the perceptions | Fast movement shows objects as pale surfaces  |  |

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