

## Theory of the perception

### Abstract

The subject deals with basic ideas connected to psychology of perception, and then, goes to a more general level of analysis which is directly related to kinds of Experiences needed to be used in our eroding environments. The starting point of this paper is to emphasize that ideas and conceptions of man are directly interwoven with materials, activities and social organizations.

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### ملخص

هذا البحث يتطرق لعدة أفكار أساسية ترتبط ببيكولوجية الإدراك الحسي، ويتعرض إلى تحليل معمق يخص نوعية مختلف التجارب التي نحتاج استخدامها فعلا في محيطنا العمراني.  
الهدف الأساسي لهذا البحث هو دراسة إنتاج الأفكار ومختلف التصاميم المتداخلة فيما بينها، والتي يتم تحديدها من خلال العناصر التالية:  
- مواد البناء ونوعيتها.  
- مختلف النشاطات التي يقوم بها الإنسان في النظام الاجتماعي.

### 1. Introduction

The Importance of perception is implicit in the very notion of urban design. The object; must be perceived and evaluated and should provide pleasure.

In the design of visual environment, the perception of space and relationships between buildings and space should give pleasure to the person who is using it.

First, the paper concentrates on those aspects involved in the act of environmental perception. This examination will enable us to understand the meaning of the act of perception.

Since the material is the basis for the production of ideas, the urban visual environment and the meaning built into it must correspond, and create facts which can be experienced with a certain unity of expectations. Thus, the visual field perception becomes a reformation and an adjustment process within which the world is projected, establishing a historic conjunction. In this way, the image expressed visually is a field of actions perceived with; (expectation, exploration, anticipation and prognostic) However, difficulties arise from that,

when we soon discover, there are many levels of visually detectable information, unspoken meanings, expansion, deformation, social, facial expressions and interactions between men. A simple view of the perceptual field would probably be expressed by two basic units: sensory perception and symbolism. (Hochberg, 1957) (1)

**2. Theory of Perception:**

According to Gestalt theory of basic concepts, it emphasizes the following aspects;

- Similar objects tend to be grouped together
- Proximity favors grouping
- Common movement favors grouping
- Meaning and effort effective meaning
- Cognitive meaning - perceptual units
- Relationship systems – building blocs
- Constructing devices is to satisfy our needs.

**2.1. Gestalts view:**

The basic introspective units of sensations and images into which it was once, thought percepts could be reduced and in terms of which they could be defined, turned out to be useless for that purpose even in principle, Gestalts,

**2.2. The behaviorist view:**

There is no casual status that could be attributed to a mental event and in any case introspective reports about what one perceives are only verbal responses and not mental events. They are depended variables not independent

Furthermore, the manner in which people perceive their every day environment is of obvious importance to urban environment.

In human behavior the use of concepts is essential. When we perceive a familiar object or event we rarely attend on its idiosyncratic characteristics because if this there was a considerable amount of time lost in allowing the senses to play upon the stimulus factors. Instead we quickly catalogue what we perceive in a matter of seconds; that is done as a response to a kind of system which is endeavoring to organize and interpret data which is available by perception. The perception model involves two kinds of Information sources.

**2.3. Sensory input:**



**2.4. Associations from past experiences:** (stored memory) it is observed that, the problem is: *“Usually one’s associative input interferes with the input from the sensory sources.”*

In other words, that important sensory data enters the nervous system but due to overactive associative inputs exclusion of incoming sensory data takes place. This is because these concepts are predictive and as mentioned earlier, man reacts to what he interprets the stimulus to be. Then, two consequences follow this phenomenon.

a) The associative category may not fit the sensory reality

b) Awareness of the associative category even if it happens to correspond to reality it is still over dominant and in effect mistaken for reality. If this is the Case however, then it must be concluded that there exist two types of realities. One is a finite and

Another is a static, upon which our perception of environment is based. This Phenomenon is suggested as a non alignment to a particular problem. That is to say, a solution to a problem of a certain category may in fact exist, at a completely different level. In particular, the designer being unaware of his own levels of experience is consequently, unable to design for others without experiencing their way of environment perception. Thus, for the perceiver there is interplay between his social, operational framework and expectations; his idealism and perception. These factors change as well as the development of the “design” changes, the manner by which we establish the perception of the environment is consequential. The predictive nature of the perceiver, allows this concepts of DESIGN to be amended, and as the results of the hypothesis that was formed became known. Judgments may also be connected with such factors as; grouping, size, shape and are also likely to include personally derived influences from these characteristics which will also contribute to the perception of the environment.

These expectancies are rather determined at the input into the system rather than being aspects of the output. Further, these expectations are not haphazardly organized, they interweaved in a coherent manner. So, when a person perceives an environment, he is forming a network of characteristics of it, and he assumes a set of expectancies about that environment: those expectancies act as feed-back to influence the input information which he will later processes in subsequent judgments and interpreted in his “**design**”. When we form these impressions of our perceived environment, certain aspects of the information is processed. Therefore, the previous model can be modified to:

**Sense preceptors - input selector – perception – memory store**

As (KELLY, 1955) (2) puts it, he was responsible for the introduction of the personal construct theory. Essentially it arose from his observations of the work of other psychologists when it became evident that; these psychologists were pursuing two separate theories of perception in the execution of their work. The first dealt with the fact that the subject either organism, people or events, behaved as if by drives, incentives, or appetites and are generally ruled by conscious or unconscious drives and whims.

The second course of events that the psychologists appeared pursuing dealt with the behavior of the scientists themselves both events, however, were monitored and performed by the scientists who operated by constructing theories, from which he divided hypotheses, he put these under tests and modifies his theories accordingly

As far as - (KELLY, 1955) (3) - is concerned, there is no difference between scientist and the subject, in experiments concerned with human behavior. All mankind

can be categorized as scientists on the basis of these theories, and particular hypothesis can be tested and consequently modified he states: abstraction and generalization of human activity are not exclusive or prerogatives to professional psychologists. Thus, psychology of personality is not simply a matter of disinterested psychologists, asserting a disinterested organism, but of Professional psychologists who are in his part are intimately and urgently involved with the job of making sense out of the life upon which his existence depends. However, in contradiction to many psychological theories, as well as general theories of social organization, mankind is continually structuring and restructuring his universe in order to understand, and predict it. Man's perceptual process are psychologically channeled by the way in which he anticipates events .It is in fact that human behavior is basically anticipatory rather than reactive, a view shared by many psychologists .The manner by which man can anticipate the future, is through the use of a conceptual framework. These are what (KELLY1955) (4) terms construct, and are defined as bi-polar concept, a way of categorizing similarities, and differences, which we perceive from our environment.

They are means by which we can interpret our situation .Rather than assume that each concept is a unity in itself , (KELLY 1955)(5)- believes that these constructs are organized in complex networks ,each person having his own personal construct network or system. A second difference is that, concepts are treated as if they are labels or categories into which objects could be placed, whereas constructs are essentially means whereby we can predict the outcome of our hypothesis. "A person anticipates events by constructing their implication." Thus although it does not follow that what has previously happened will reoccur ; we do expect certain aspects of our previous experience to happen again .Therefore all constructs systems are personal that is that people have different approaches to the same event not because there are any differences in the events themselves ,but because people anticipate differently any roles that they have to play in it .The hypothetical anticipation of events are subsequently revised in the light of experience, consequently the personal construct is undergoing constant evolution.

"Constructs" are essentially predictive, thus when we construe a man more honest than dishonest we are essentially predicting if we lend Him money we shall get it back." (KELLY, 1955)(6)- Constructs then according to him are not merely ways of labeling our universe, they are ways of trying to understand and anticipate with given information .It is because our system of constructs is exclusively predictive that we are continuously reassessed, as fresh evidence is presented, (KELLY, 1955)(7) argues that; " no man has ever reacted to a stimulus." He reacts to what he interprets the stimulus to be.

«From this Kelly argues that: *Every construct has a focus and a range of convenience this been the group of elements which the construct was designed to make predictions about, and the maximum number of elements the construct can include.*

### **2.5. Structuralism:**

Malinowski was the first to introduce structuralism and then, the social anthropologist (Strauss1966) (8) .Malinowski's founding version was basically that: "different institutions within a society were made-up to serve the psychological needs of the population". It was a tantalization without contradictions. The analysis developed

from the fact of a principle, that; society is a series of fragments which a theory is incapable of dealing with. Structural are antagonisms. Accordingly where conflict was concerned, it was treated as conducive to order this kind of analysis to fit perfectly the pre- 2<sup>nd</sup> World War, political orientation of Britain,

The basis of (Strauss's, 1966) (9) work has been formed on his three elements: geology, psycho-analysis and marxism. He says the three showed an understanding is consisted in the reduction of one type of reality to another, that is; true reality is never the most obvious of realities. In all these cases, the problem is the same the realization between reason and sense –perception."

However, Leach argues that "in practice the relevance of Marxist ideology for an understanding of Strauss (1966) (10) is difficult to determine. Strauss (1966) (11), use of dialectic with the formal sequence of **thesis – antithesis – synthesis**, is Hegelian rather than Marxist and his attitude to history seems to be quite contrary to Marxist dogma. But the picture is greatly confused by the dialectical interplay between the existentialism of Sartre and the structuralism of Strauss." He goes on. "But then Sartre is a Marxist and so also from time to time is Strauss or so he says!" however, existentialism, and structuralism, have common roots with Marxism, and it is generally agreed that the distinction between the two is by means as sharp as some tidy minded critics would like us to believe." I will close this rather interesting subject with: "what we know about the external world we apprehend through our senses. The phenomena which we perceive have the characteristics which we attribute to them because of the way our senses operate and the way the human brain is designed to order and interpret the stimuli which are feed into it."

Marxism although in agreement on a biological level maintains that the mechanism of interpretation and categorization, are developed through man's past experience with the material and social world. Thus these mechanisms are developed according to the level and kind of organization that man operated within as well as the past conditioning of man and his future projections, which are part of his present social consciousness.

Structuralism, however, does not accept this continuum of space and time so that we are predisposed to think of the environment as consisting of vast numbers of things belonging to named classes and to think of the passage of time as consisting of sequence of separate event."

He goes on "correspondingly, whereas we may construct artificial things (artifacts of all kinds) or device ceremonials or write histories of the past we imitate our apprehension of nature: the products of our culture are segmented and ordered in the same way as we suppose the products of nature to be segmented and ordered.

The general case of structural analysis starts from:

- "Define the phenomenon under study as a relation between two or more terms
- Real or supposed
- Construct a table of possible permutations between these terms.
- Take this table as a general object of analysis which at this level only can yield necessary connections the empirical phenomenon considered at the beginning of possible combinations among others to complete the system of which must be constructed before hand". The issue of nature and the emphasis that Strauss put into the

dynamic of nature, must not be misunderstood with the motion that Strauss is an "idealist" in his "style of bishop Berkeley;" he is not arguing that nature has no existence other than in its apprehension by human minds. (Strauss, 1966)(12) said that "nature is out there" and is governed by natural law, accessible to human scientific investigation. Furthermore, Strauss is not attaching great importance to the recurrence of detail in different parts of a map, but he is more preoccupied in qualities of the constructing elements and their significance in relation to the other parts that make up the map.

A basic aspect of our perceptual world is time. Time is as (Ornstein, 1972) (13) observes one of the continuing, comporting and universal experiences of our lives, all our perceptual intellectual, and emotional experiences, are interwoven with time. And yet, the difficulties of studying such important phenomenon are enormous. For an analysis of the experience of time, one can point neither to an organ of perception, like the eye, nor to a physical continuum like the wave-length of light for study by objective means. There is no immediate point of departure for a scientific analysis of time experience.

Man however has created larger number of time keepers from candles to calendars to time units connected to the time it takes to boil rice and so on .In terms of urban environment the importance of time is obvious. Time experience can be looked from different levels of experiences. Thus, the general aspects seems to be very important as (Ornstein, 1972)(14) points out this; "*There is a popular saying that time is money*", Time is not money but the concept of time is similar to the concept of money in that, each refer to many different sorts of things .Expending this general idea , an amount of money 1000 dinars at a given period of a man's life will have a set of meanings related to his circumstances .Ornstein identifies four modes of time experience:

- the perception of short intervals rhythm of timing;
- duration, the past –long term memory;
- temporal perspective –philosophical, social, cultural, constructions of the world and their effects of the interpretation of time experience .becoming the future;
- succession of simultaneity.

The first mode ,according to general opinion ,that short –time experience is around 3 or four seconds ,while long is somewhere about ten seconds .It has been found that within the short interval there are two processes one is the immediate **perception** of short interval or apprehension, the other is the rhythmic –motor aspect of time termed timing. A basic difference between short- timing interval and duration is that the first always exhibits the quality of fading where as the later of permanence the experience of duration seems most keyed to remembrance of things in the past to retrospection. The relation between the present as short term storage and the past duration as long term storage is high since each involves memory storage .Ornstein is saying that there are two major approaches to the analysis of this direct experiences of time ,an approach based on the sensory process idea ,and one more cognitive, based on information

processing . The three aspects have already been discussed. The four modes are concerned with what is the same Time?

We are not going here to expand of the theories behind these approaches the purpose is to show that, time is a basic component by itself a complex problem, a necessary element in the study of perception. There are several procedures for quantising complexity of time figures, for the problems of the urban environment however, the experiments of actuary, (Garner1966) (15), has provided us with some interesting findings. Instruction “on a sheet, given a line which represents length of the first interval, into which you looked at a figure. Please indicate how long the second relative to the first interval was.

First experiment showed that an increase in to the number of stimuli filling a given interval lengthened duration experience .As the complexity of a stimulus increased lengthened and the further increases above that point no longer increased duration experience following experiments confirmed this results it has been established further that “successful” experiences were estimated to be shorter than unsuccessful ones . This seems to indicate that successful urban environment if they are to be successful – the containment of elements to sustain such state must be far greater in number as well as at different levels. So far we have only dealt with experience of perceptions for adult's .Children provide us with countless lessons of perception of the environment that can be usefully employed.

(Piaget, 1966)(16): child learns to distinguish... sensory-motor stage from a dualism to dualism: child learns to distinguish between self and not self, and begins to build up a permanent inner image of outer objects, both people and things main gains are in motor development child discovers “joy of being the cause.”

Infantile realism, egocentrism, pre causality, animism, authoritarian morality: child sees himself as centre of universe, cannot conceive others to have a different view point. Conversation is usually monologue child has non – realistic ideas of causality e.g. ideas of immanent justice that the punishment arises out of the crimerules are God given and unmodifiable.

Everything is alive and has wishes and feeling. Main Gallus are acquisition of language (symbolic function) but child is not yet able to compile and haws of physical causality. Stage of realism, concrete operational logic: child develops notions about physical causality, and the rational world .discovers rules to be made by consensus of opinion .discovers he has a right to his own opinions and can take part in decision making. Abstract thinking: develops child now begins to work out problems using thought along (in his head) and is no longer dependent on concrete operations.

(Piaget, 1966)(17),existential space –Shultz schemata We have not touched specifically on the question of intelligence and perception as yet but it seems that a great many people avoid the area as well .The general opening statements of this study indicates that there exists a strong relationship that is through the social organization and circumstances, man is given or deprived of important elements which contribute to increase some aspects on his mental capacity. The “psychology of study, on perception leaves as with no doubt about the relationship of intelligence and perception. Setting

the problem as follows:" *what happens when someone makes an observation?* If we could begin at the very beginning in the study of what happens when a living thing becomes sensibly aware of changes in its environment? We might have to begin with amoeba? But we do not know what if anything an amoeba feels .The development of perception is one of those processes which have to be studied backwards .He then proceeds to construct the elements of perception as follows:

- content ;
- span ;
- speed ;
- organization ;
- selectivity ;
- accuracy ;
- objectivity.

This highly intelligent systems thinking , defines the question of what appears ,how much and how quickly as being the first stage of comparison then “we have to note ways in which human perception differs from mechanical process ,and other criteria of efficiency are discovered .Note that up to here the system is quite simple .“Observation is motivated perception” it is goal directed, and the efficiency of a process of observation is essentially a matter of the degree to which the several features of the act perception contribute to the expedition of the attainment of the goal." Thus adds on,

- “That, what is perceived is always organized ...”
- That perception is selective and that some selections are better than others.
- That perceptions or observations vary in occupancy...
- That perception can be more or less objective and that although all observations require being objective in one sense, subjective factors in perception can contribute to good observation.

There is no doubt that from this classic analysis of perception ,the deprived environment of western social organization ,the lack of information and the distorted reality of things through the education of man ,from such kind of analysis as the above, if children are lucky to get at all the media ,produces a man with a very special perception capacity, perception span.“ The physical and mental personality is conditioned by the environment .” The word conditioned “ has different levels of cruelty and inhumanity according to an individual political orientation. Environment however means not just the physical environment , but man’s organized life within a physical structure, that is because as a city cannot be imagined without its people so does environment cannot be conceived without its people operating it ,and so on .

The roles of man within the organization of the environment thus under varying conditions produces different reflexes ,or perceptual constructs or even mental disorders. The urban environment as described by ( Lynch,1960)(18), with his five points methodology still leaves out the physical facts of the environment .The five points methodology of what designer think ordinary man interprets the environment to be ,may be useful to the designers ,but cruel to the people and the environment since apart from anything else the transformation of quantity to quality is been conditioned by a design method changes that take place within the urban environment are not simple occurrences of design acts but reflect much wider issues. Thus a cluster of



buildings can be attributed as being significant because it stands out from the rest of the urban fabric. The same group can be associated with a concentration of activities or some historical events. These properties are what (Shultz 1969) (19), refers to as “schemata are Cultural determinants and comprise of qualitative properties resulting from the need for effective orientation in the environment. The dynamic of the link between culture and social and physical organization of man requires him to construct mental images of his environment. Cultural idealization results to, as well, to the abstraction of some of the mental images of the environment, to symbols.

**2. 6. Symbolism:** symbolism occurs when particular experiences are generalized and associated (Arnheim. 1969) (20) Gestalt psychology and artistic form are described the phenomenon of isomorphic symbolism as something that “does not depend on alleged association of one object with another but on perceptual qualities inherent in visual form itself.

While in the case of metamorphic symbolism one concrete thing is said to stand for another concrete thing.” he illustrates the case of isomorphic symbolism.”

The Eiffel tower in Paris is an example which transformed from isomorphic to metamorphic that of specific use. The metamorphic symbolism is dependent on the immediate use -specific- the isomorphic relies on the meaning rooted and expressed in the actual form” leauduc urban form –the visual environment. In this sense, (Cullen’s 1971)(21) work is isomorphic and in this sense a romantic ideology and symbolism on the other hand this isomorphic quality it is argued can be transformed to metamorphic through its immediate use by man the phenomenon of metamorphic symbolism can be used to explain for instance the rebuilding of Warsaw of the house of Commons – that is that if the visual distinctiveness and image is lost there is a fear that the activity significance will be lost. On the other hand if the activity significance is lost the image can disappear as in central areas and so on.

Symbolism is limited and dangerous because it is primarily based on an abstract reality and dangerous because it leads to misperception and backwardness. We shall describe briefly the following:

The work of (Steinitz, 1968), (22) meaning and the congruence of urban form and activity. The basis of his approach is that “viewing the physical environment as a field of communications, about activity systems gives the urban designer clues for the achievement of a more meaningful urban area congruence: is the suitability of fitness of urban form and activity his starting point is of course the debate of what is significance.

- The type of the activity.
- The relative intensity of the activity is to adjacent activities.
- Its significance to the adjacement activities in order that we obtain good fit

which is the basic preoccupation is to fill the gap “meaning “ left by Lynch in his first hypothesis for the project which is described in the article, Steinitz defines congruence as “consistency between physical form characteristics of an environment and the attributes of its activities.” It is however significant to note that the way congruence is defined by Steinitz there are many kinds of congruence, as there are meanings, further

the “specific validity of congruence ,is limited in context and time .”*So that the individual has to rely on the past experience* .it could in fact be suggested that congruence in this sense can be associated more to perception and the aspects of the man’s interpretation of other man’s actions which form the urban fabric .Thus the second hypothesis “ the more a form type is common ,intense ,and highly exposed , the more often will activity characteristics be known “.The third hypothesis is “ the more an activity type is common busy and important ,the more often will activity characteristics be known .” basically quite similar observation have been made by other people .

Steinitz (23) observe that to fill the gap “meaning “ left by Lynch ,is essentially otherwise ,the creation of “highly accurate and wide spread sense of the physical form of an environment without “activity meaning “ this knowledge is of little utility .”This theoretical zig zag goes on.” The values of formal clarity seem to require in common the ability to obtain meaningful activity associations from the perception of form. At the other, it is possible to acquire a sense of the organization of activity in an area without visually experiencing its form. Yet in the real world of the city simply knowing the activity pattern the content without the form is also of little value.

- Hypothesis, meaning tends to be reversible. Ability to describe form characteristics of a place is highly related to the ability to identify its activity attributes and vice versa.

- Hypothesis, is for any (of the above mentioned) meaning the higher the level of congruence of a place the greater will be a person's knowledge of that place.

In conclusion to this theoretical approach, it can be said that the difference between Lynch and Steinitz is that where as Lynch's methodology is basically oriented to be a design tool for urban designers and not necessarily of what people see, Steinitz approach is based on to exposing as such as possible to the eye so that a more meaningful mental picture of the urban environment can be constructed Kaplan through cognitive mapping we get to the point of an integrative frame work which deals with human needs underlying environmental preference. The cognitive map makes possible recognition –prediction –evaluation –action and includes human needs and capacities. The environment which contains such requirements thus is possible.

- 1- to make sense
- 2- novel and challenging
- 3- permitting choice.

Cognitive mapping is “about how people experience and how people know the environment.”

“The purpose is to extend cognitive mapping to the area of environmental preference.”The argument is the same informational process that the cognitive map makes possible exist as essential human needs that require environmental support.”

### **2.7. Cognitive map assume**

- People are aware about their environment is simplified form in relation to other information that they have.”

- Information is coded in a structure in the head and that this structure corresponds reasonable to the environment it represents .this map is schematic sketchy incomplete distorted simplified idiosyncratic.

The kind of information that would necessarily be contained in a cognitive map is:

- Recognition (knowing where you are –recognize demands)
- prediction (knowing what might happen next-familiar what leads to what)
- evaluation (knowing next thing to be good or bad-to anticipate favourable actions)
- action (knowing what to do be able to think alternatives)
- In terms of human needs?
- To make sense out of what you see interpreting familiar and new things.
- The enjoyment in guessing (betting? creation of interest)
- The delight is of dividing the work in good and bad guys.
- The exercise is of skill...choice.

A well structured memory, a cognitive map of the special environment is essential for our survival a cognitive map is an approximation to continuity .such map is unsuitable. Cognitive maps are convenient sets of shorthand symbols that can be used to describe the environment in this sense; cognitive mapping is a way of simplifying environments that are too big and complex to know entirely through the process of acquiring, coding, storing recalling and manipulating spatial information

### **2.8. Coherence; variety and choice:**

- An environment one can make sense order;
- must offer novelty challenge and uncertainty lack of order coherence;
- multiple features to aid differentiation;
- repetition of a given element;
- structural basis is underlying arrangement of elements. Permits predictions it shows that idiosyncratic nature can support prediction apple yard s examples of strong imagery making easy the task of remembering .Thus to make sense on the environment does not depend on extreme simplicity but on coherence and variety.

**Coherence** can be –a distinctive character.

The uncertainty favoured by most humans is temporary.\* it must permit choice Man's need to be original, but people don't require Disneyland outside their doorsteps.

### **Conclusion**

According to Lynch on clarity and coherence, we agree with Rapoport and Kantor on complexity up to a point, we then think they contradictory –ambiguity in opposition to Legibility and thus we says they diverge from our position .complexity he says may turn out to be a half truth and unattractive he is afraid that design in terms of complexity could become computer generated random. The designer must unavoidably deal with factors that touch deep and ancient human concerns .It is hard to scope the conclusion that variety can only be appreciated in the context of order and that order is lifeless and useless without such variety. Given the difficult task the designer faces, in particular, needs a map of the dogma in his struggling with a model of the process with which he must content, Is not an easy task.

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