From Chaos of Preception to Cognition of Architecture (Part II): Creating and Destroying the Information

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Abstract—Up to this point in the book, the author was trying to familiarize you with the way human mind and institution work by providing examples and reasoning and explanation and logic in the customary way so that you understand what you are after in creation of a work. Now, know that those who can master the process of perception and cognition and awareness are allowed to manipulate the people to guide then towards pure awareness and introduce a true innovation into the architecture beyond the limits of daily perception and beyond the cognition attained by the head eye, being aware of the fact that whatever we know to be true in the world is different from their actual truth, like a skillful surgeon who can, contrary to the ways of nature, reach into the depths of the human being to optimize his existence. This is a license only granted to the aware, responsible, and truth-seeking artists who would never rebel against the truth, their ideal is not pretention, and wouldn't disparage the nature, the culture, the mental patterns, and the earthly human institution not even for a moment despite knowing the secret behind the veil of this worldly life.

Index Terms— Anthropocentric Architecture, Chaos, Adaptability, Creating, Destroying, Information, Perception, Cognition, Architecture

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1 INTRODUCTION

At this stage, we will create information which would enable us to peel away the habits by mastering the process of metal pattern formation [1–11]. At previous stage, by more information we meant information which was deliberately and directly implanted in the body of the work and its amount, which usually included perceptual information, was determined by the architect [12–22]. At this stage, the focus is more on the coded information which are constantly created in between the fractal boundaries of reality and virtuality and conscious and unconscious in the mind of the audience [23–50]. This sometimes include information which the architect has no dominance over and is not aware of how to regenerate them and to what extent but they are very profound and effective [51–72]. Creating and destroying information is a method to elevate the cognitive-perceptual level of the audience, complete the mental pattern and promote the thought and awareness of the society from the level of norm to a higher level. As the sole creator of the work we can influence the mental patterns of people and transform their level of perception, cognition and awareness through the following methods [73–98].

2 THE GESTALT PRINCIPLES

Although the issues focused on by Gestalt psychologists have been more about visual patterns than cognitive patterns, generally, it can stated that they took the first right step towards cognition of cognition, i.e. formation of pattern in the mind for perception. Thus, in creation of the work and creating and destroying information in the interactive space between the building and the mind of the audience, we can much benefit from Gestalt principles and generalizing them.

Since according to the principle of totality, the nature of the mind demands that each component be perceived as part of a dynamic system of relations, we can create a different normal perceptual phenomenon in the audience by changing the environmental conditions or conversely, revive the wholeness of a known collection by recalling part of it. By providing the information about a phenomenon which the audience has previous experience with and destroying its unwanted information, we can totally encourage the mind of the audience to interact with the new work while creating the sense of familiarity accompanied with surprise. The conditions for the formation of the mental pattern including the psychological and physical conditions and the previous experiences of the observers, provides a wide range to increase the information capacity of the architectural system. Using architectural elements and forms, of which most people have a pleasant experience helps increase the quality of the entirety of the architectural work and the cultural continuity. This is the method which Pahlavi architects resorted to by using ancient Iranian architectural elements. Therefore, without the exact repetition of all the elements of the architecture of the past, we can revive our identity and culture by recalling parts of it. On a more micro scale, based on the experiences and mental conditions of the employer, we can retrieve the mental pattern related to the whole memory or a specific phenomenon by referring to some matters.

The principle of psychophysical isomorphism states that the mind perceives motion through repetition of static, successive objects in a specific time unit. This actually means that we can create information beyond the existing physique in the mind. Using this principle, we can generate generative and coherent information in circulation spaces where motion is the domi-

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nant spatial behavior. Instead of using rhythm and repetition whose information is declining, we can consider an agent whose characteristics are transformed over time and the formation of the mental pattern from this change is only possible through motion and depending on the speed, different perception is gained from it. In this regard, topological geometry and natural forms can be inspiring. Look how human members are transforming to each other gradually in the shell of the skin. Undoubtedly, an archway whose entrance is in the form of a square and gradually turns into a semicircle contains more information than a simple path. This transformation might be in the type of decking, wall color, decorative forms, motifs and proportions of the space. The gradual change, in fact, creates an incentive to move along the path. In designing the wall of a city adjacent to roadways, constant and meaningful gradual changes can be very pleasant and interesting by forming different patterns in different speeds.

The holistic nature of the process of perception and the human need to be determined and the definition of the world around always forces the mind to interpret even the most amorphous combinations in the form of mental patterns. So, according to the principle of emergence, you should always try to render the details purposeful in the service of expressing a whole form by considering the information generated by the mental patterns of the audience and avoid repeating the information. It is possible that you inadvertently design the elevation of a building symmetrical with an analysis-oriented approach which on the actual scale, causes the observer to pass on all the details of your design by comparing it with the most mental pattern, i.e. the human face, and in his/her general reception, recognize a face where there has been no intention of implementing one.

The principle of reification in architecture can be used by chromatic and optical demarcation. By drawing optical strings or laser lines, we can set boundaries among which the mind distinguishes the virtual volumes or surfaces. The shadings resulted from the lighting can create distinct surfaces beyond the existing architecture and the warm and cool colors completely transform the mind's visualization of dimensions, proportions and boundaries of a certain space by their diverse characteristics. You can remove a volume by blackening it or magnify it beyond its actual size by using bright colors.

Referring to the laws of similarity and proximity, the mind constantly tries to classify the objects based on their similarity or in other words create a connection between them with the purpose if defining and determining the world around. It is required that the architects consciously reinforce his/her message to the audience by controlling the similarity of the components and direct their mental pattern by predicting the additional information which the mind conceives between the components. Besides formal similarities, the components might be similar in essence, function, dimensions and proportions. On urban scale, the owners of specific activities, such as banks or hotels, always try to make their buildings prominent through general similarity and identical symbols. In designing the volume of a building, the architect designs sections with identical activities similar in terms of functional quality, access, lighting, spatial dimensions, etc. In designing the eleva-

tion of the building, we can also design the exterior spaces to look identical, make a mental association of a certain pattern by considering similar elements in different places, or induce certain classifications and divisions in mind using the law of proximity.

The principle of multistable perception which states the issue of the conflict of form and context and the uncertainty of the perception in the final understanding of dimension and form, has always been one of the favorite discussions among the artists, from which we may benefit in designing the form and volume of the building. Using the principle of invariance and laws of closure and continuity, we can create the intended mental pattern in the mind of the audience by providing part of its information and avoid repetition. In turn, it is possible to trick the mind the same way and based on its expectation of the environment and create novel forms. Generally, mental patterns are still recognized even in the absence of a large part of the information and based on this characteristic, the designer can deliberately remove or change parts of the information and leave the creation and retrieval of it to the audience. Thus, the information capacity of the work would be increased.

3 EXCESSIVE INFORMATION

Undoubtedly, numerous designs and details which might be useful in destroying redundant information and attracting the attention of the person to the current place by entering too much information into the mind in a religious traditional space are not suitable for a work room. Delivering information in excess of the capacity of the brain leads to delusion of the message or perceptual error. Excessive complexity and details on a scale causes the mind to ignore other information because there is too much pressure on the mental patterns. This mostly occurs when a seemingly trivial information source is complex in practice. That is, it appears to be recognizable in the framework of our known patterns but it's not. In this case, as the source of information generates information in excess of the processing power of the brain, it pushes other information in mind towards destruction in a way that the audience is unable to focus on his/her internal data in the presence of such a phenomenon.

The architect must control the amount of information based on the type of the activity intended for the space and the mental capacity of the intended users of the building. The random volumes and designs, though simple and few, put excessive pressure on the mind like a mystery unanswered because they don't form a logical relation and determined pattern. A simple red surface is much different from a simple white surface. The frequency of the color red which is radiated from such a surface activated the pituitary gland, which secrets adrenaline and strongly affects perception. The architect uses the color red in a sport space where not much intellectual activity is required to improve the physical fitness. In such a place, the brain wouldn't focus on it while in rapid motion. It rather both absorbs energy form the red and mitigates redundant information through transient perception without being under too much pressure. However, in a place where intellectual activity or even daily work and life is underway, the color red and

other strong colors, many details, random elements, conflicting symbols, hallucinogen and fanciful designs should not be used. These cause the mind to tire earlier than expected and cease to function or become nervous and irritable.

We can direct all the mental capacity to our intended message by entering excessive information into the mind of the audience in a controlled manner. In addition, we can correct many of the architectural defects by focusing excessive information and attracting the audience to it. Many museums and exhibitions leave the most effect and memory on the minds of the visitors by proving compressed textual, visual, and auditory data in a short period of time.

4   LACK OF INFORMATION

Lack of sensory stimulation caused by excessive monotony or simplicity leads the mind to generate information internally. This internal generation of information, if exaggerated, might lead to nightmares and illusions. The most obvious manifestation of this case occurs in sleep. It is clearly observed that when the brain is disconnected from the outside, or in other words, it cannot receive external information, the mind starts to create and destroy internal information and make things up. For whatever reason, if enough external information does not enter the mind, this happens: when a person is places in a space or engages in a certain activity or is engaged in processing the information of the place. Based on the activity defined for the space, the architect must decide how much information to present or orient the mind of the audience towards generating internal information by deliberately cutting the flow of information which depends on the experience and the mental nature of the user and its quality and quantity is not clear to him/her.

This characteristic is used frequently in the Far East because those people are more inherently introvert than others. The minimal approach popular in Japan focuses on associating most with unconscious information but excessive use of it would lead to spreading fear, mirage projection, illusions, psychological disorders and even embodiment of mental conceptions due to the pressing need for external information. In ancient minimalist architecture of Japan, mixing the building with nature made up for lack of information but using the minimal approach in urban architecture, without extensive presence of nature adds to its negative characteristics. As is observed, the owners of these houses prefer to avoid it all day on the pretext of working and just use the building as a place to sleep, because staying there would cause them mental disorders. Reducing the information is recommended in spaces like the bedroom, the bathroom, the music practice room, thinking room, library, or the TV room where creation of internal information or focusing on the source of specific information is necessary, but in most spaces, it is unpleasant. The architect can adjust the amount of information provision to the whole building by consciously creating spaces with low amount of information in combination with other types and/or create localized opportunities for reflection and activation of the audience's unconscious.

5   MISLEADING INFORMATION

As was explained in the perception chapter, misleading information in fact inject adverse data into the ever-familiar and simple patterns which forces the mind to doubt recognizing them in the framework of the given patterns or that the mind hesitates to choose between the patterns. Gestalt's principle of multistable perception refers to the same issue. It is in the give and take of the mind to select the pattern and getting stuck among them that creation and destruction of information takes place and the observer cannot leave his/her place to understand the flow of information. Creation of misleading information means increasing the admissibility of different interpretations of the building. In other words, this information leads to the creation of vagueness and ambiguity in mental patterns. Vagueness means having doubt and ambiguity means having several interpretations or according to Venturi, both-and. Vagueness indicative of uncertainty and lack of clarity forces the mind to think and focuses its internal energy. This can be completely controlled by the architect. S/he can introduce questions to the building and leave them unanswered. Like a door which opens to nowhere. However, ambiguity stems from illusion and the presence of multiple answers. This goes beyond the power of thinking of the mind and is related to imagination. The architect can create illusive possibilities, of the absolute result of whose effect s/he is unaware. Here, information created merely seeps from the mind of the audience and the information overthrows his/her routineness. The pattern is born out of shapelessness. These notions are subject to the mind of the audience and depend on the extent of unconscious, personal interpretation and the cognitive level of the person. These notions should not be used in the design of the generality of the work because they lead to the loss of determinacy. But, using them in details would greatly increase the information capacity of the design and triggers the increase in unpredictability. Creating these types of measures, while being simple, highly depends on the mount of creativity of the architect. Creation of vagueness and ambiguity in different ways discussed under the creativity section can promote the perceptual-cognitive level, trigger reflection and creation and destruction of information by creating a question in the mind and doubt in formation and recognition of the pattern. Creating contrast and complexity in the design increase vagueness and ambiguity. Rhythm is created from the repetition of a series of elements. Perceiving the periodicity is only possible in a limited time interval: if the repetition intervals are about a second, the periodicity is perceived. So, if you want to enter an unexpected element at this stage, you need to first introduce several elements with his time interval and then introduce the conflicting elements in the same interval. Chromic, formal, functional, etc. conflicts can also be used. The form which is not in agreement with its function and content is an example of this and using it as a sub-system must be done carefully in a way that it promotes the perceptual level and not destroy it. For instance, a glass bridge contains is excitingly conflicted. Its material seemingly contradicts with its function. The mental pattern of the bridge becomes doubtful and surprised when encountered with such a phenomenon.

6 DECEPTION OF PERCEPTUAL STABILITY

According to what was discussed in the Perception Chapter regarding perceptual stability, the human brain has fixed conceptions of the characteristics of objects which might not always conform to reality but humans attempt to recognize their environment based on them. Knowing the functions of these constants, we can create new information and destroy expected information in a wide range. Using the properties of perspective and a normal conception of size and scale, we can maximize and minimize and present form and distance contrary to what really is. Deceiving the mind relying on different types of perceptual stability is the main key of cinema scenographers and stage designer. Gian Lorenzo Bernini was one of the famous architects who made proper use of this quality. The brain has a certain conception of the size of objects and estimation of the distance. In order to display the grandeur of St. Peter Church, Bernini designed the square before the entrance in trapezoidal form not rectangular, as expected, with a wider end so that the observer who enters from the opening of the square and looks at the building perceives it bigger than it is while having a broad enough field of vision to recognize it.

Perceptual stability of the form can deceive a person. Take a sole ten-story building which has no adjacency and internal determining details to hint at the scale. This building has been built at the height of trapezoid instead of rectangle, i.e. its width is less at the top than at the bottom. Based on his/her mental pattern, the observer has an estimation of height, by referring to which s/he perceives the building to be more than ten stories and of course, since s/he does not doubt the accuracy of this cognition, encounters no trouble with its determinacy, understands it and enters it. When s/he goes to the floors, e.g. the tenth floor, and glances downwards, s/he is conflicted and his/her initial information of the building starts to de destroyed. Here also the reality eludes him/her because the unexpected shape of the building now shows the height lower than it really is. This duality and surprise is something which would create a puzzle and information for the observer to a long time!

Over time, the mind forms specific definitions of the gravity, weight, balance, size, proportions, material resistance, etc. according to which different architectural elements are defined. Altering any of these fixed conceptions would lead to creation of much information in the mental patterns which would result in conflicts. Glass bridges and forks, suspended heavy objects, a waterfall going upwards and any elements smaller or bigger than their usual scale create such information.

The stimulations which the brain receives from the environment to adjust motion plays a key role in controlling the balance and walking. That's why we fail to move properly in darkness or with our eyes closed. Imagine a stationary bridge around which a cylinder revolves. Upon entering this bridge, the mental patterns of people is so confused by seeing the revolving tunnel which they stop to move at all and fail to cover the distance and some might even fall on the ground and perceive their state as revolving while the main path is stationary and there is no physical hindrance!

7 VIRTUAL INFORMATION

Here, any information which is not a direct result of the body of the building is called virtual. Frequently, the mind creates and perceives information which neither exist nor is a result of imagination from experiencing the external information and trying to interpret and recognize it through comparing it with mental patterns. Therefore, the brain believes the virtual information to be actual with its presumption of the environment and depth! As the brain perceives a virtual depth from seeing objects which are seemingly piled upon each other or have different density of color or different sizes and/or are seen at different heights of each other on whose reception it persists although the person is aware of its inaccuracy. Clearly, we can define spatial hierarchy, perspective, and adjustment of spatial proportions using this quality. For instance, we can present a space larger than it is by using cool colors like blue and green or conversely, present it smaller using yellow and orange and create a spatial quality beyond the physics of the place.

The mind can estimate the distance of the objects and recognize perspective by comparison. Based on this general quality, the architect can try to correct the defects of the space or impose a certain message on the audience. Three walls forming the scope of the room are placed vertical to the ground but with non-perpendicular angles to each other. On the left corner, it is low and far and on the right corner, it is taller and closer. The pictures show a room twice where the position of the father and son are reversed. If you look from a determined angle, our presupposition of the perspective and our reliance on the mental pattern of distance, all the abnormal matters are covered and the room is rendered normal and the size and height of the father and son which are perfectly normal appear abnormal. Here, environmental stimulations have transformed our visualization of the objects. It is shown when we look from a certain point and angle, due to perspective, the person at corner A would appear at corner A1 and based on the pattern and the mental expectation from the perpendicular angle at the perpendicular angle. Thus, it appears gigantic.

As we saw, most optical illusions are caused by the comparison of the information of the object under examination with the environment or its adjacent objects. The brain, in search of the recognition scale, compares them with its default patterns and although not able to believe, cannot break away form what is perceived. Recently, painters have benefited from these qualities to create their masterpieces through urban (street and wall) painting in some large cities.

Besides the area of five senses, the qualities of sense of time, sense of location and sense of motion should also be considered by the architects. The emotional conditions and the general and specific human moods affect the perception of the environment and formation of mental patterns consciously and unconsciously. One of the factors affecting the process of perception is the sense of time. How we perceive time affects our general perception of the phenomena and the process of the incidents directly and greatly. The mental system is itself a natural clock which is consistent with the environment and takes the sense of time away from it, disrupts the adjustment of this clock and takes some time to adapt again to the new environment. Time units are formed in the mind and become meaningful through experience, the meaning of time for

man on Earth is resulted from the circulation of the earth around the sun and has no similarity to what goes on the another part of the space. Locally, the time felt by each person depends on the states and emotions and the speed and the rush of the arbitrary time becomes distinct. Our guess of the duration of time passed rarely conforms to the time shown by the clock because we unconsciously perceive time in a chaotic system formed of different patterns not one-dimensionally and linearly. Thus, when we are in a haste or have a farther goal in mind, the time seems to pass more quickly. Continuity of temporal units can overlap, incidents taking place prior or later than each other are not registered in the mind by preserving the time. They are rather all stored in a separate chaotic basin of time and place and remembering them not only does not happen in chronological order, it is with no regard to the time interval. Memory is retrieved suddenly in all its mass. On the other hand, it should be stated that temporal units are not equal: an hour spent leisurely is psychologically is not the same as an hour spent hard at work or on a task and this is one of the characteristics of adaptation and organization of chaotic system of mind to perform a task. In order to adjust the sense of time for the audience, it is necessary that the designer design the details in conform to the behavior expected in the space so that the time is spent pleasantly and in proportion and encourage the person to maintain his presence in the space.

Like the matter of time, our perception of place is also formed as senses or patterns in the mind and is not similar to the mathematical place which rests in the area of pure sciences. Although the mind unconsciously records almost whatever it receives from the environment, however, due to its holistic nature and optimization, depending on the psychological state of the person of any place, the mind focuses the conscious on information necessary for perception and no more. The spatial pieces might overlap in terms of perception. Perception of spatial units, like time, depends on the psychological moods of the individual and the current state of the place. All of us has a conception and memory of the school yard and classrooms which appeared larger on the scale of the child and the psychological presumption of being little and subordinate. If we go visit that school now, the places would seem much smaller than we thought. In turn, our experience of the place where there is a crowd or while mourning is so that the space would be emotionally perceived smaller than it is.

In addition, the mind, due to following the structure of chaos and tending to perceive the environment from whole to parts, prefers the external beings to be determined and unpredictable. So, determined and predictable places and phenomena seem boring and undetermined and unstable places seem scary. That's why we are scared of the darkness of the night, floating on the sea, being lost in the desert, being exposed to high altitude, and crossing a suspension bridge because these situations are generally undetermined and unstable even if we are sure there is nothing scary about darkness or the sea waves. For whatever reason, even non-physical, if indeterminacy occurs, it would lead to anxiety, mistrust, fear, bewilderment, and instability of mind like a simple event of hearing a sound from beyond the wall and not being able to determine its source.

On the other hand, if the mind simultaneously records information about a place during personal experiences, it would retrieve that information in the next similar experiences and experiences a sense of the place which is beyond the control of the architect. That's how a place can bring someone joy without any physical reason just by reminding them of a good memory or of the companionship of someone dear to them. This subject will be covered in the discussion of memory building and forgetfulness.

Another critical consideration is the matter of perception of motion. Basically, motion is one of the fundamental components of mental patterns, in a way that the brain is always ready to perceive motion even in stationary phenomena. This is because in the natural environment, few things are without motion and change since they or the environment is constantly transforming or the perceivers and their eyes are moving. Another reason for it is that the brain should always be ready to react to maintain the balance of body and the stability of mental patterns in motion. This constant and default readiness sometimes causes virtual perception which the architect can take advantage of in creating virtual information. As putting contrasting colors together or creating a rhythm or gradual change can invoke the sense of motion in the mind. Based on the perception of motion from stationary objects, according to Gestalt theory's explanation, Phi phenomenon is used in making movies and animations. It's the brain which builds a pattern with seemingly constant information to be perceived by creating information and by referring to the pattern of motion, amends the unrealistic situation between the two observed movements. Visual error in recognition of complex patterns can also be very useful in sensing motion and covering the physical defects of the building or creating novel spaces in architecture.

Virtual perception of motion is also possible in another way. This principle is called the consequent effect of the perceived motion. If we stare at the flow of water in a river long enough and then look at the shore of that river, we feel like the shore is moving in the opposite direction of water flow (creation of contradictory information). The motion of river bank in the opposite direction is also monotonous. Or if you look at a coil spinning in a direction, when it stops, you'll see it spin in the opposite direction. Even though there is no convincing explanation for this effect, it appears that this creation of reverse information is associated with perceptual patterns of balance in the brain and is not related to the consequent effect of the eye due to staring at a still image or the effect which the image leaves on the retina.

Now, technological advances have created a situation where reality could be converted into virtuality and vice versa. We can mix the above qualities and create a different image of the environment. This new method, technically called V.R. or virtual reality, can help us better design and perceive the spaces which do not physically exist or are very complex and detailed. Now, information might be so virtual that it might not even be founded in a physical body. This is the era when humans can be invited to the most fanciful spaces.

Virtual reality is used is two capacities of non-immersive and immersive. In the first method, i.e. using 3D softwares, the designer can control all the spatial qualities, lighting, structure, volumes, relations, etc. and design his/her ideas more realistically. Currently, rather than relying on 3D softwares to create space, the architects merely use them to display the final product to their clients. It's because spatial cognition of most designers have been limited to cognition through mock-ups and two-dimensional

drawings due to pressure of academic education and even when they have such an instrument at their disposal, they still display and develop that cognition and do not use it to modify their design and complete their ideas while these softwares are the best instrument for creating not just presentation and it is imperative that the architect create and modify the spaces simultaneously when creating the work not draw two-dimensional maps and ask someone else to let their imagination soar and render the maps three-dimensional. In this method, the designer succeeds in creating a space which does not actually exist. The advantage of this method is the visualization of the spaces and the possibility of designing and controlling the details on all different scales.

In the immersive method, the one experiencing is put in an imaginary space through some maneuvers and experiences a space with his/her senses which does not exist at all. Of course, as effective and powerful this system is, it is also expensive and unavailable to all and is mostly at the disposal of filmmakers costing exorbitantly. The tools necessary for this experience include three-dimensional glasses, hearing aids controlling the sounds, electrical gloves or handles which transmit the hand movements via optical fibers to the computer and recently, a virtual globe equipped with sensors which if you walk in it, you'll feel like you are walking around architectural spaces and on top of everything, very powerful computer processors!

In this method, the designer can enter the space of his/her fancy and apply any change and design at the same time and step by step. S/he can perceive and observe the unbuilt spaces at length and control every detail with real perception. Most importantly, s/he can also take his/her employer inside the space and help them understand his/her ideas and be informed of their desires and views. Truly, this is the best instruments for designing!

Who knows, maybe the future wouldn't need physical buildings anymore and the world would be formed from the immaterial effect on the human perception process based on a virtual reality like the Matrix movies! Even if this doesn't happen, it's obvious that the demand for such spaces would increase day by day due to different reasons and why shouldn't the architects be the designers of these types of spaces?

Although there is nothing more horrifying than perceiving a space which does not exist, a movie like Matrix, besides this nightmare, refers to an important matter which must become our role model for interacting with the world and that's the fact that we live as we believe. Don't wait until the computers impose information on us. The task of the architect is to present his/her audience with the best even though corruption rules and it is on people to demand from the universe and believe from their environment what is worthy of human institution by refining their perception and elevating their level of awareness. The science of chaos has many interesting and original ways to create virtual spaces. Chaos, relying on the perceptual-cognitive system of the mind, proposes a way to create unrealistic sensations and virtual information merely with the specific cerebral stimulations and without using complex and heavy equipment. You just need to trigger the retrieval of stored conscious and unconscious mental patterns in a way other than visual stimulation. When we see an object, the brain recognizes and recalls its initial pattern, then it discerns that it has seen it. Now, if we stimulate the brain to spontaneously recall and recognize the same pattern without there

being an external object by electronic stimulator, the same perception would occur. This is not that far-fetched. All of us widely experience this type of perception during sleep. Only if we can rebuild a dream consciously and in a controlled way, we would catch a great break in creation of space. This area of research is still widely unexplored and scientists have not succeeded to do so.

8 IMAGINARY PATTERNS

As we discussed before, randomness and calling something a random factor merely means it belongs to a super-system which is beyond our perception and mental patterns and in fact, its smallest scale is larger than human scale and thus, its pattern is not recognizable. There is no random phenomenon in the world. Anything beyond human and belonging to the nature is chaotic. Although splashing paint on a canvas is not considered art, it can contain information which has emerged in a specific time and place as a product of the work of the painter of the nature and the resulting image, like the shape formed in the coffee cup, rice scattered on a cloth and the arrangement of I Ching coins or yarrow stalks, contain an effect of the person creating it, the message of whom is not clear but some things can be discerned among the disorder.

If an architect randomly and aimlessly mixes forms and blindly present a composition, we might be able to consider this form as belonging to a chaotic system since the architect him/herself is a natural sub-system, but this system is beyond our perception and pattern formation limits. So, this form is called random and as we rationalized, wouldn't be determined and thus cannot be pleasing and since is not adaptive to the environmental systems, it is rejected. Random systems enter excessive information into the mind because the mind constantly tries to recognize its pattern in the give and take between the outside and its own mental patterns. According to what was described in the discussion of determinacy and unpredictability, if this exploration is on a big scale and leads to indeterminacy, it would be accompanied with frustration, irritation, fear, and failure but on small scale, it can lead to surprise and constant creation of desirable information.

In details and sub-systems, wherever the influx of information does not cause interference, we can condone to use the factor of randomness. When you are lively and wholesome, paint your room's walls using random strokes of the brush or sudden splashes of paint. You'll see that patterns will be born out of shapelessness. Illusive designs will be created. You can live with these designs which are a result of your nature for years and find different new shapes in them based on your spatial behavior, emotions and mental patterns. However a temporary design is better due to the congestion of the random design. You can choose a semi-transparent cover of random designs for a light source other than the main light source of the room, upon passing through which, the light would create imaginary designs on the walls and ceiling. The brain finds different shapes in them depending on the mental state such

as joy, exhaustion, leisure, depression, etc. while the person cannot predict whether the shape s/he would see tomorrow would the same as his/her mood or the source of light changes! It's as if each time, information relating to that specific mental pattern is destroyed and new information is created.

The quality of action paintings which are created randomly is this ability to be interpreted countlessly. Truly, the painting is filled with information but information inaccessible by the observer and the truth is written in a language not known even to the creator him/herself! The observer can rediscover him/herself in that personal information and enjoy it this way or hate it. The more the chances are of finding a familiar pattern in the painting, the more the thee observer will reflect on it and enjoy it but if after a certain amount of time, usually not more than three minutes, s/he cannot find a familiar pattern in it, s/he would pass it and would no longer be interested. As it was emphasized, art cannot rise out of nothing and if it doesn't represent something, it's worthless. In all fairness, you can spend a lifetime just watching and admiring a carpet from Tabriz, Kashan, or Kerman which is made with true art but ten minutes seems too much for watching an action painting!

It is essential that we avoid confusion when using randomness. As we said, chaotic systems suited for human perception are formed from few factors but with complex behavior. Since randomness, it is beyond the scope of perception, it is necessary that when we use it, there be very few variables and only one aspect of the matter be defined free and the remaining determined and controlled. Otherwise, the amount of the novelty of information would go so high that it would force the mind to collapse even on smaller scales. For instance, we can use randomness in flooring but it is recommended that the arrangement of the floor stones be random only from a single aspect. That is, just one of the qualities of the pieces, like the color, the size, the texture or quality, is assumed variable not all or some of the qualities. You can use small and big rocks of the same quality to cover the surface. Or use rocks of the same size but randomly chosen different colors, etc. But if you choose to act randomly on everything, the matter would be drawn to congestion and confusion. In fact, the systems would overlap and the mind would fail to recognize it and when you are unable to recognize any mental pattern, you'll just hate the observed phenomenon.

9 MAKING MEMORIES AND FORGETFULNESS

As we stated in Perception Chapter, building memories by definition means creation of information and forfetfulness means destroying information. The artistic architect can permanently affect the conscious and unconscious of people or recall the favorable past for psychological enrichment by deliberate designing. In addition, in order to emphasize his/her message to the experiencer, the architect must be able to destroy the redundant information related to the anything outside the system and erase it from the audience's memory and keep the audience in the presence of the architectural space as long as s/he can and positively build memories for them so

that the information about the work would remain in their mind for a long time and would feed the mental patterns and become a presumption for the judging other works. This is an effort to affect the past, the present and the future of humanity.

As we mentioned, the mental pattern in the brain is formed based on the person's presumptions and experience of the place. If the person's experience of the space amounts to a disturbing memory, the whole pattern of that space, regardless of its design and physical characteristics would appear unpleasant and dark to the mind. Imagine a religious space in whose design and details and lighting, every necessary and sufficient factor for creating the sense of spirituality and devotion is observed to perfection. If a mother loses her young child in this place for an hour, in that hour, which would seem like hours to the mother, none of the measures and the information borne by the message would register in her mind. On the contrary, her whole mental pattern of the space would be laced with fear and worry, amounting to an unpleasant memory which would make her reluctant to visit the place again. In fact, her mental pattern is formed of information which are not related to the body of the building at all, but rather are created from the incident. Thus, you can see that the incident and the personal experience are the most effective factors in formation of mental pattern of the same which are of course, modifiable and improvable by the next incident taking place. Relying on this principle, rather than designing the form, the architect can help make lasting experiences and correct the old presumptions or provoke emotions supporting communion or promote the people's level of awareness even if they are asking for it by defining possibilities for the occurrence of controllable events in the space.

The search scope of strange attractors of the mental patterns in their information reservoirs is so broad and inclusive that even smelling a fragrance can revive a very old memory from a time when that fragrance have not even been noticed. The architect must try to relieve humans from any concerns, problems and any bothering information via different senses and encourage them to experience the defined spatial behavior by liberating their free will. The scope of unconscious act much more forcefully than the conscious, so, it's better if the architect consciously approach the audience from this direction. Besides using the archetypes, namely the nature, integrate visual patterns with olfactory, auditory and emotional patterns to leave an everlasting impression on people. Suitable music sets the mood and is even able to eliminate the undesirable effects of the space. Even playing a short sound when getting in and out of the elevator or when the doors are opening gives the person a sense of security, determines that s/he has entered a space or has reached the destination and is not left hanging midair. A mild and pleasant fragrance like the smell of plants, soil, bread, rice, and coffee provides them with familiarity; different natural colors, textures, elements, and material leave a profound effect on the unconscious because they belong to the archetypes. The slow movement of the leaves in the breeze, a potted geranium on the edge of the pond, old music, the sound of waterfall in the central hall, a bird singing on the window facing East, the dance of particles

floating in the light columns created by the holes on the ceiling, the smell of wood burning in the fire, the music coming from the plectrums of an instrument, hand-made tiles, a path lit with candles, a cozy camp in the shelter of the trees, the sound of water droplets shattering on the glasses or the pervasive silence during snowfall, the small rainbows formed from the clash of light and water droplets, the rustle of autumn leaves which lie under our feat instead of being above us, the pigeons and sparrows picking grains on the counters of openings, etc. are all cause for building memories and a collective call which affects any human to a higher or lower extent and must be repeated in different shapes so that the link between generations is preserved.

10 CONCLUSIONS, PERSPECTIVES, STRATEGIES, USEFUL SUGGESTIONS AND FUTURE STUDIES

Symbols, as the language of unconscious, can be very efficient in changing the foundations of people. Even if your audience doesn't have enough cognition to benefit from the meaning of symbols in the conscious, they will leave their effect on their unconscious. Undoubtedly, only those architects who are completely informed of the meaning and effects of the symbols are able to properly use them to positively affect people. Referring to the cultural and collective memories, you can form a bond between your building and the hearts of your audience and make its memory eternal by taking measures for the experience of the space in a way that anytime the pleasant effect of these measures which are in the context of the pattern formed of the space is repeated in another time and place, it shall revive the whole mental pattern of the space. If the person's experience of the space is pleasant, this memory and the re-creation of the information would be a profound and lasting effect of the message of the architect which would promote the perceptual level and would stroke the soul. Try to preserve the cultural continuity by recalling the archetypes such as the elements and symbols of historical architecture in a new and attractive form and remove any damage, darkness, and malice towards the collective, national, and ethnic identity from the mental pattern of people. Provide your audience with the chance to experience events in the space that would enable the child, the old, and the young to rid their mental patterns of weakness, frustration, humiliation, bigotry, lethargy, desperation, fear, worthlessness, guilt, helplessness and hostility and give them a fresh view of life. This way, you can modify the already formed patterns of the past. Present the present to people like a chance at hand and an open world and thus carve a lasting memory of the architectural space in their mind which would make their tomorrow better than their yesterday.

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SHORT BIOGRAPHY AND OUTLOOK

Architect Sanaz Eftekharzadeh was born in 1975 is an independent researcher and the CEO of Iranian Association of Sustainable Building-City founded in 2014 in Tehran where she can focus on her research interests such as vastu Shastra, sustainability, Chaos, Cognitive science, Transactional Analysis, Semiotics, Persian literature, Aryan culture, archeology, ancient Iranian Mythology and patterns in art and architecture and finds the ways to apply the achievements in practical architecture.

She has got her M.S. of architecture from Shahid Beheshti University/ Architecture and Urban Planning faculty with excellent grade in defense. The subject of her thesis was applying of Chaos theory in architecture, focusing on cognitive science for defining a design methodology entitled: "Towards a Chaotic Architecture".

This theory presents a new definition and then new methodology for creating architecture. It considers architecture a system of distinctive minds of the architect and the audience and the architectural building itself, which is a subset of diverse environment, then chaos, as the agent defining the rules of the mind's function and the nature and the connector of different branches of science and art, has redefined it as the best system for the human's physical / psychological/ cultural needs which can be named anthropocentric architecture. The achievements of the thesis has been developed in 17 years expanding on different scopes of cognitive science and updated outcomes of chaos theory to present the characteristics of the anthropocentric architecture in 7 stages . The book was published in Persian as: "from chaos of perception to cognition of architecture / a new theory to create an anthropocentric architecture based on laws of chaos" in 2014. In the same year the book has become the finalist of the international award of book of the year of 2014 and awarded as he book of the season in Iran. It also was the winner of the Dr. Mozayani national book award of 2014.

Sanaz Eftekharzadeh has participated at more than 30 national and international conferences and forums, T.V. interviews and academic seminars as the lecturer and architecture theorist and analyst and has presented more than 60 papers and articles in national and international journals.

In 2017 she received the title of "The Architect of the year" of Iran for the best architectural criticisms based on her unique theory. Before that she had been selected as the Best researcher of the year of 2010 by the ministry of habitation, roads and urban development of Iran.

She has been the editor-in-chief of Architecture and Construction Seasonal from 2006 till 2010.