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# A Novel and Modern Comprehensive Theory to Create an Anthropocentric Architecture Based on Laws of Chaos (Part II): Patterning

Sanaz Eftekhazadeh

Faculty of Architecture and Urban Planning, Shahid Beheshti University, Tehran, Iran.

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### ABSTRACT

The outline of the determined boundary of the Iranian snowflake was formed in the previous chapter. Now, another quadrangle rotation around whose axis perfects the main context of the architecture is introduced: *the fancy of the work*. The mind of the architect is required to have an imagination based on the subject of the design in regards to the users to create the initial embryo in the scope of the first stage's conditions to create the entire work. This is the most sensitive part of the designing and leads to the fundamental difference in the works of designers because as we mentioned, chaotic systems are extremely sensitive to initial conditions and any slight difference in initial conditions of the formation of the system can lead to fundamental transformations in the final product. This stage is the stage of patterning or creation of fancy. The term fancy is chosen to define the mental pattern founding the design because it simultaneously covers cogitation, concept, imagination and fantasy.

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### 1. Introduction

The system of architecture starts with a demand wish and by our definition will only turn chaotic if it generates a pattern. Here, this pattern is the mental pattern formed in the mind of the architect and is conveyed to the audience through the building [1–17]. As we saw in the description of the systems, random phenomena do not form a recognizable pattern and linear systems generate point, linear or periodic diagrams [18–44]. Only chaotic systems form complex and recognizable patterns [45–49]. When the equation of such a system is fed to a computer, for a while we see scattered points appearing on the screen; we cannot predict where the next point shall appear, but we can be sure that it is within the scope of phase space [50–63]. Gradually, a shape is born out of shapelessness and the schematic of the chaotic system is drawn. The fancy-finding stage takes place the same way in formation of chaotic architecture [64–71]. At this stage, we aim to discover how far the existing potentials and relation would stretch by jumping from one idea to another and from one perspective to another and give our creativity a chance to flourish; as if the design is an ethereal being which we want to extract from a mass of irregular thoughts, redundancies and parasites and scattered mental patterns, but we won't forget that ultimately, this mental jumps should be transformed into a real design in the determined scope of the first stage and in the framework of natural-climate, cultural, executive, policy making systems and don't deviate from them [71–93].

In summary, the second stage deals with the mental pattern formation. This pattern or fancy which later on would be embodied in the fabric physique of the building is created in an unpredictable space and then becomes determined and limited by the criteria developed resulted from the framework of the subject of the design and the conditions of the first stage.

### 2. Fancy vs. Concept

Before any explanation, we must understand the fundamental difference between *fancy* and what has become the bane of architecture called these days *concept*. Conceptualism, in spite of its literal meaning, is basically an approach to deconstruction, deconceptualization meaninglessness, and formalism in architecture. Roughly speaking, five decades ago, the atomist approach of the West finally reached to the point that a group founded conceptual art, as opposed to visual art, regardless of form and aesthetics in the form of displaying objects and relations, merely to invite the visitors to think. In fact, real conceptual art was to counter the approach which merely focused on form. Shortly after, conceptual architecture followed. However, it is interesting that this type of architecture was not to oppose form but was defined as a reaction to the soulless structures of Modern architecture which considered form a follower of function with the goal of promoting the form by extracting it from the concept instead of function. But, what was neglected in this approach was that in architecture, unlike other arts, the intended concept to create the form is not selective or optional, but it is dictated by the subject of the project and has a structure confined to function and executive possibilities. For example, a sculptor is allowed to embody any concept with any form and material and on any scale s/he desires, but a work of architecture, as ruled by its subject, in connection to human scale on which it erected, is entitled to a concept which is defined by the structure and is formed in a specific executive scope. For instance, the subject of a house embodies the key concepts of life, security, peace, and habitation. The life concern of a home design is the family not the form and volume. It is possible to extract the basis for very different conceptual and formal ideas from this approach based on the context condition, but the selection of an independent concept such as randomness, openness,

Tele:

E-mail address: [authorcorresponding@gmail.com](mailto:authorcorresponding@gmail.com)

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extension, folding, transparency, etc. to create the form of a house is considered deconstruction because it is a concept independent of the subject of the work and would lead to a form which inevitably would not be directly accountable to the mental pattern and spatial behavior of the audience.

The architects who founded post-modernism imported new definition such as formalism, deconstructionism, and conceptualism to architecture which was gradually turned into an utterly inhuman act as it got further away from the actual goals of architecture. Today, many architects try to convince their audience through philosophizing and justifying designing concepts that their work of architecture is meaning-oriented and thoughtful and not merely a superficial and deceptive form. Although we cannot understand from the ramblings of formalist, conceptualist, and deconstructionist architects how exactly they distinguish between meaning, function, structure, and form, but the descriptions and works of one of the genius thinkers of architecture who imported the definitions of concept and deconstruction into architecture clarifies that these three follow the same goal.

Peter Eisenman, one of the five famous architects who defended the authenticity of form against structure regulation and function in architecture, is one of the first people who used concept for the specific goal of creating form in architecture. He cleverly put his finger on deconstructing the function in architecture to challenge modernism. Eisenman created thought-provoking and attractive forms by logical, rational and mathematical methods in the name of architecture which challenged the internal functions. We can see that in this sense, concept is to find a source of inspiration for merely creating a form which obviously not only heeds no attention to the subject of the project and human behavior in the space, but it selected with the purpose of deconstructing. Therefore, we can see how concepts deceptively replace the real notion which should be derived from the subject of architecture as an answer to the natural question of the mind of the meaning of the architecture and thus leads to the separation of form and content. By introducing deconstruction into architecture, Eisenman deliberately tried to disrupt the expected content and function of architecture and this way, he perfectly showed he completely understood the structure he was attempting to challenge.

Although few are the people who deliberately deconstruct architecture like Eisenman did, but today, deconstruction is not a unique and creative act but is much more generic than architecture! Simply put, wherever the expectation (mental pattern) and the behavior of the audience in regards to the building is marred, deconstruction has taken place. Therefore, we find that most modern architects who are completely unfamiliar with their native culture, the behavior of the users, and the human proportions, all are deconstructionists or more precisely, *non-architects*.

However ridiculous it appears based on reason, today, many educated architects truly believe that architecture is basically form and if they get the form based on a concept, they have achieved conceptual meaningful architecture, even if the inherent needs of the space is unfulfilled or left disorganized. Chaos emphasizes that architecture is not a mere form that can be separated from its subject. It is a purposeful system which is created as a result of the conditions of the first stage and *its meaning is the same as its subject* which is a resultant of the definition of the human perception and behavior in regards to it. If you consider architecture just a form, it wouldn't matter if you resort to the

architecture of the past in order to manifest it, attempt to composite volumes, or develop a concept, in any way of these you are so far from the real architecture that you'll be forced to deconstruct because when you create form independent from the content, you'll either have to impose function, the requirements of the context of the design, climate and cultural conditions on it later or left them all hanging. What is so created is in fact devoid of a notion that answers to human institution, however logically the surface is created. Meanwhile you have not changed the content and structure consciously, but you've disrupted the structure of the space without any goal or thinking and consequently, the conditions of the first stage and the core of the design, i.e. the audience of the work, is out of your control!

We should emphasize the point that in finding what the true notion and goal of the architecture is and with which fancy deals and the work must be a manifest of which, merely engaging the subject of the project is not intended, but as we shall explain, finding the fundamental questions, Structure and intelligent enquiry of it is required. Therefore, even if you have designed a form resembling a teapot in your design of a tea house by referring to the literal concept of the word which interferes with the human behaviors in it, despite your reference to a perfectly determined mental pattern, you are a formalist who has deconstructed the architecture of a tea house based on the concept of the container of tea or the teapot and you have not explored the real content of the subject which can be meeting, recreation, relaxation, and timeout. It doesn't matter that you have resorted to completely random and unpredictable things or utterly determined and common patterns, at any time you ignore the real needs of the users, you have deconstructed, which is a failure from the viewpoint of chaos.

The strong desire for reducing architecture to form in post-modern approach led to the architects going wrong even in modeling of classical and historical architectures. A look at the history books of art and architecture clearly shows that buildings which were introduced to describe a certain style or examine a certain period of architecture, are the palaces, temples and buildings whose subject was somehow dependent on the notions of power, majesty, glory, excellence, heresy and pride. In other words, the main goal and function of these architectures was to influence on urban, country, and historical scale and the owners of power and wealth and the religious and cultural leaders were determined to even defy the climate, cultural, social, and economic systems in order to erect and preserve them. Examination of such works which relied on form to convey a certain message without regards to their profound notions of proportions, shapes, sculptures, paintings, and colors of any style emphasized, became an excuse for the followers of post-modern architecture who wanted to celebrate the death of modernism by magnifying the importance of form. Gradually, the goal of fighting modernism was forgotten and what remained was the reckless focus on form on every scale by questioning the modern functions of residential, official, commercial, and cultural which even ruined the empty symbols of the past.


Any approach which does not fulfill the perceptual, psychological, and physical needs of the user by avoiding the main subject of the architecture is getting farther away from the expected structure and notions. In this state, any approach which becomes the basis for formalism in the name of concept does not have any substantive value and serves

deconstruction. However, the meaning of deconstruction is not completely negative or positive. Depending on the amount of damage inflicted on function, notion, perceptual-cognitive level of the audience, and the type of behavior of the audience and most importantly, the type of the new structure presented by the architect to replace the old structure, the user of the building might react in three ways: reject it, impose his/her own behavior on it, or change his/her behavior and expectation. In the first and second cases, the building would be considered lacking, but in the third scenario, it is possible that the building initiates new values and innovations in architecture. Eisenman and other postmodern architects set a great movement in motion architecture by challenging the gray style of modernism and encroaching on the mental patterns of their time, but they remained at the level of destruction of the past structure without providing any valuable achievement to the humankind. Although their initial works were applauded, it was rejected by their direct audience because architecture without meeting the expected function is not architecture. Deconstruction must remain at the initial stage of protest. Repeating it as an architectural approach will only ruin architecture and the result would be superficially disorganized buildings on which the traditional behaviors and functions were imposed. The most vulgar form of deconstruction is manifested in the countries imitating the West where, not having gone through modernism, the architects don't even know what they are protesting against and since they know nothing about the historical texture and architecture and its valuable and excellent structure which they are trying to change and destroy, they give in to the common usages of the space and merely transform the façade by misarranging it.

Despite all these explanations, there is no escaping from deconstruction. The progress of human civilization has always been based on breaking down the old structures and replacing them with the new achievements. However, in the field of architecture, it was not the post-modernist, deconstructionist non-architects who presented new spaces and possibilities, but it was the inventors, structural and computer engineers, craftsmen, and environmentalists who by inventing new structural and transportation systems, new materials, different types of computers, electric equipment and machinery and thereby, defining various spaces for their usage and also environmentalist approaches to dimensions, proportions, material, elements, circulation, promoted the quality of architecture and consequently the behavior of human in space in the form of superior technological approaches or sustainable architecture. Formalist and sustainable approaches, both challenged the modern style of architecture but the first only focused on disturbing and destroying while the second recommended a new and better alternative. Undoubtedly, a frame must always be broken so that a new structure can be born. But this should be done with deliberation and after much research to find a better answer to the fundamental question of the subject of the work and the human needs in order to be progressive and valuable; and this is the definition of fancy which chaos insists on.

Fancy does not reduce architecture to form like concept does. You might ask, if we go beyond the form, then how are we supposed to visualize architecture? The answer is that the mental patterns of architectural system are formed from the various receptions in the mind of the architect, not from the pure form of the building. Remember that architecture was

not introduced as a volume but a system of interaction among the creator of the work, the building, and its audience. The moment you are in contact with the building or visualize it, you are declaring your presence and what you imagine is the result of your perception and cognition and interpretation of the architecture, not the reality of it. You might want to call it intuition, but chaos calls it multi-winged mental pattern. As was described in the formation of mental pattern or scheme by chaotic system of the mind, to recognize a new *object*, the brain skims through its saved pattern and is able to form a connection between perceptual patterns to recognize an unknown phenomenon. When the traditional architect was developing a mental pattern to design a house, he did not see a form or volume, but had a pattern in mind composed of different formal, computational, behavioral, descriptive, sensory, etc. mental pattern which together formed the behavioral pattern of architectural system. Today, this pattern is not imaginable for most of you, because your atomist and linear cogitation has blocked all perceptual routes other than visual embodiment, but a skillful architect, when creating work, builds a synthetic and multi-winged of the spatial embodiment and the interaction of environment, human and space in the mind. S/he is able to pass through spaces in his/her imagination and control his/her perceptions of accesses, relations, light, proportions, and shapes, etc. in terms of the reference patterns already in his/her mind. Although we are not able to visualize such a pattern anymore, but these patterns are well formed during sleep. In your dreams, you experience and perceive spaces which you've never seen before and are not seeing in your sleep but perceiving. The mind extracts some information from a reserve of the various patterns you've experienced at various points during daily activities, studies, wishes, and places, and builds a pattern based on them which you can perfectly perceive and experience without ever seeing it. You even fly in these unusual spaces and find it very familiar and pleasant in your sleep although you have no experience of ever flying. Designing is also creation of such live patterns of the space in the brain. We should be able to create a new mental pattern called the fancy of the design by connecting and integrating already existing mental patterns.

Some might be skeptic after reading the first stage that in the form of the mandatory restrictions mentioned, the design reaches its end and there remain no room for the creativity of the architect. That's not the case. On the contrary, chaos considers architecture an offspring of the architect whose true identity is influenced by him/her and his/her mental power. The architectural building is the language of the architect to convey his/her message to the audience. The best system to generate architecture is the mind of the designer which grows pregnant fertile in response to other people's minds and the environmental conditions are the raw materials to give birth to this idea. The main configuration of the work which we show as  is a result of the adaptation to the environmental systems and patterning by the creator of the work. In many cases, the subject and fancy of the architecture are so valuable that they convert the architectural system itself to a super-system which affects the environmental systems or ignores them in the form of an innovation or historical leap. Most of such ideas take place through political turnarounds or technological evolution.

After the embodiment of the architect's mental pattern of the building, the audience of the work, each depending on their specific conditions of spatial experience, receives unique

mental pattern. This pattern which is different for any audience shall be the behavioral pattern of the system from now on. This diversity ensures that the architecture remains live and chaotic. Comparison of the mental patterns of the audience of the work and the initial fancy can help assess the architect's success in creating the work and conveying his/her message to people. Again, we must emphasize that only chaos or the live mind can successfully create a live, dynamic, and unpredictable pattern in the mind of the audience. Modern and imitative buildings are not capable of forming a dynamic pattern and the disorganized works do not create sustainable patterns in mind. The seven stages of designing aim to guide you through the creation of chaotic architecture so that you can build a sustainable and lasting building. At the second stage, the goals of the design are set and determined. The designer must be able to find his/her initial idea in line with a specific goal and base the configuration of his/her design on it. From that moment, wash your eyes and look at the world and the broad meaning of the architecture from a new perspective. *Architecture is not a form, but an invention! The process of architectural design is not to create a volumetric composition but to solve a fundamental problem.*

Today, we think we are so much smarter and more advanced than our ancestors, but the bad news is that our mind has become so solid and limited under the influence of formative training and scattered discourse of the teachers that it's been rendered severely incapacitated and linear. We learned from the architecture schools to visualize but forgot how to naturally perceive and think! We turned from creative and productive nation into consumers and users. We use language, software, tools, various sciences, food and clothing while we don't have the power to create them. Were our ancestors who invented language and writing and founded the structure of language in a way that today, we are in awe of its capacity to expand, update, literary devices, grammar and the ability to convey meaning smarter or we who merely use the language are? Do we have more mental power who fall short even in understanding the meaning of the poetry of Hafez and Maulana, or those numerous Iranian poets who actually composed those great collections? Even today, we can't find a poet with their expertise as we can't find an architect on the same level as the architects of our past. Were those who invented Backgammon and Chess were smarter or we who play purposeless computer war games are? Redoubled efforts are required of us to be able to regain our natural perceptual-cognitive power. If we rethink about architecture as an invention and not a volume that must be built on beams and columns, the doors to change and creativity will open to us. Then, we will solve problems and perceive the notions, not merely search for a form which would leave the mouths hanging open from seeing it but is stuck in the functions and dissolved in the relationships. If Leonardo da Vinci attempted to innovate in any field he ever touched, it was because he considered any phenomenon a subject for discovery and any work a subject for invention. His intelligence was capable of recognizing the fundamental problem and creating new patterns from the relation of various mental patterns in any type including visual, conceptual, computational, etc. It didn't matter whether these patterns were in the field of architecture, painting, and sculpture or mathematics, geometry, and music. But, today, our greatest architects claim to create a new form at best without having solved any problem or being superior in any quality to other through their work.

Is it really impossible to invent anymore in response to all these essential needs in lightless and polluted cities where people suffer from lack of space and inactivity?

Based on our nature, we are able to solve a problem and find the solution with a natural approach, but the lessons taught in schools of architecture drove our mind to the depths of darkness by teaching us to compose forms and create purposeless and senseless volumes! As Brian Lawson's research showed, designers are not capable of recognizing the problem! They immediately seek the solution without properly perceiving the fundamental problem or the requirements of the context of the design. Thus, designers adopt strategies which are essentially approximate-experimental. An experiment done on first year students of architecture showed that they were not like that from the beginning! In most modern schools of architecture, the design methods are aimed at creating form. The truth is that the today architect considers his/her weakness in the perception of space and the lowest cognitive level, i.e. the ability to embody visual patterns the only hypothesis of the creation of the work and inevitably thinks that the work of architecture is just a form. S/he has no idea of the types of mental patterns except for formal visualizations and the interesting part is that the more s/he fails to perceive other patterns and the more limited s/he becomes to visual patterns, the more s/he considers him/herself creative! Currently, in schools of architecture, the students are encouraged to think about phenomena other than architecture so they are forced to explore the relations between phenomena. But the result of modern architects' act show that their intellectual foundation is so solid and inflexible that it is not capable of flowing between architecture and other notions anymore. Rather, form is created with no added value or not promoting the usage or spatial quality of the work like a separate additional shell with no regards to the subject of the work and then the usages functions are imposed on it in the usual way with little innovation or even worse, they omitted. The difference between the architecture of the past and present is quite obvious: in the past, a system or device was created in response to the needs of the users and was formed within the constraints of the environment; now, a form is designed which is either utterly subdued by the executive factors and has nothing new to offer or is in conflict with environmental constraints, and is imposed through much advertisement and at a high cost on functions, the society, the audience, and the context of the project!

Our ancestors did not merely integrate shapes to create new patterns. They purposefully took advantage of the gradual evolution of conceptual meaningful patterns which were the resultant of the culture-cultivating beliefs and myths. In the art of Iran, Mesopotamia, Egypt, India, and china, different types of sphinxes and signs and mythical creatures not only enjoy extraordinary abstract forms which goes beyond the power of abstraction of present humankind, they also embody notions and stories which have formed the identity and cultural foundation of every nation. Today, there is very little significant creative cogitation underlying the explosion of the new artists who believe in the authenticity of form and call themselves intellectual, deconstructionist, pioneer, or conceptualist. The two approaches which are currently used to create form with various means is creation of purposeless form or embodying a concept. The first which enjoys the integration of visual patterns with no purpose and profound belief, has the lowest human perceptual level to

create new pattern which in most cases, the major part of production is dependent on the computer. The second is actually sculpture, not architecture and at best, would lead to the creation of a beautiful urban statue not architecture. However, these two wrongful approaches also can lead to the creation of valuable works with proper perception of the space. As we see, when architects who have gained spatial perception and cognition through experience add form to the architectural space while remaining faithful to it, they still can produce works worthy of human institution.

Unfortunately, though, the concept finding method of most architects is based on the collective archive of magazines and illustrated books of architecture and reference to them during designing which Lawson calls the category trap. After years of experience, he concluded that the training of architecture schools guides the students and architects towards mere idea taking from other buildings and works and this is very threatening in countries where imitation of unseen works of others is the trend. Some architects take their ideas by referring to magazines and from their pictures and mount these ideas on their problems. When a designer looks for a chance to use these ideas, s/he ignores the differences and actual problems and imposes his/her preferred form on the subject of design as an accessible category and the easiest solution.

Some others try to produce a combination of others' works. Taking inspiration from the work of others is not only a common method in architecture, but it is also essential to the survival of the culture and architecture of a nation and it is recommended in order for the cultural architecture to continue to exist in the form of a dynamic system. But the problem is that architects who replace volume with image and space with volume without having any understanding of scale and the spatial effect of a work are producing formal and artificial patterns. As a result, not only they have no control over the spatial quality of the work, they won't be able to reproduce the quality of the building they are imitating. Architecture cannot be perceived and experienced through two-dimensional modified pictures many ways smaller than reality. The brain fails to form a spatial pattern of the images and is forced to resort to formal pattern instead of having the help of spatial pattern in order to create a new pattern and inevitably, forms a statue instead of a human space! The more we flip through architectural books and spend our life in front of the TV instead of travelling, the more our brain becomes two-dimensional and linear and would fail to perceive the reality of the space. The main mission of the architect is to carefully examine the first stage and find the fundamental problem and its solution in a way which is unique and of course usable by the audience. Otherwise, these days, internet and various magazines and CDs provide everyone with images and maps of architectural projects for the minimum fee and no one would pay any added amount of money by any means for a second hand map and anyone would be able to design.

Although idea finding concerning the form can also lead to pattern formation and creation of desirable works in architecture and for instance, a part of bionic architecture is the result of this valuable method, but the architect is expected to be capable of forming a connection between all his/her perceptual-cognitive patterns as the person with the highest level of cognition and initiate the fancy from a fundamental notion and reach a system that is able to meet all perceptual and functional needs. Here lies a point finer than a

toothcomb which is not easy to explain and only appears obvious to those who are able to perceive the space rather than visualizing the form intuitively or through experience : there is a wide gap between inner perception of the notions and then embodying them in the form of a building and the initial visualization of the form and imposition the notions and functions on it at the next stage which might not be tangible at first but the two way are very different although in a chaotic and masterful mind the formation of form and notion takes place simultaneously or with the minimum time difference. Architects who are able to express the first statements of the design by drawing a shape or diagram have reached a stage of simultaneity in combining the patterns to form a new mental pattern that they can immediately recognize what form can solve their problem or to what form considering the conditions of the first stage would lead them. This ability can only be achieved in three ways: experience, intuition, and the chaotic way which is introduced here. Otherwise, no one can start designing by creating a causeless form or rely on others' experience through imitation or creating volumes through estimation and approximation. In any case, s/he would not be able to directly solve the fundamental problem unless the fundamental problem is the intended subject of the form as in the case in the design of urban memorials and signs. It appears that these days when we are so far away from natural and intuitive understanding and the chances of spatial experience are so limited for the university professors, since we are not allowed to inflict the spaces resulted from our personal trial and error on people's money just to increase our experience, the only way is to teach architecture through chaos. But do not neglect gaining proper spatial experience to keep your mind fresh.

Despite what idealist conceptualists think, fancy is not born out of nothing but it is placed within the scope of what we have perceived and learned consciously and subconsciously. And since the human mind does not know anything beyond what it has experienced throughout its life or via genetic inheritance, inevitably it should be able to create this new pattern from connecting and discovering the internal relationship between its own various mental patterns. Access to subconscious patterns is difficult and complex for modern human. The only time we are able to harvest this vast source is when we find a direct connection to it. If we succeed, the language of symbols and the secrets of the nature would be revealed to us and would gain access to a bottomless source of deep awareness which enables us to create fascinating patterns which would directly interact with people and affect their souls. This power is totally out of reach for conceptualist and formalist architects. This ability is exclusive to mystics who are contemplating in the essence of universe in search of the genuine notion and their apparent characteristic is respect for the nature, culture and humanity. Their accomplishment is not exciting and ostentatious, but welcoming and mysteriously and universally well-known. To embody and restore these ancient patterns, we must take time to discover ourselves, experience the nature and understand the culture. To keep your brain alive, spend 24 hours of each month in nature; walk barefoot on the sands of the beach and listen to the variable melody of the waves, soak your feet in the water on a river bank, lean on a tree in the forest and watch the sunlight shine through the leaves, if a squirrel comes along, watch it jump the branch, follow its steady and fast movements and don't resist the childish trill that threatens to overwhelm you from watching this scenery.

Sink into the scorching sands of the dessert and gaze at its wide, endless expanse; walk around in a wheat field and stroke the wheat spikes and fill your lungs with the smell of wheat; spend some time feeding the birds on the balcony of your house or pet a cat; follow a butterfly on the sidewalk, run even; lie down on the roof and imagine shapes among the clouds and stars; choose a deserted path in a park and while you walk with your eyes closed, focus only on the feeling of the breeze on your skin; go to the old neighborhoods during rain and as you are getting soaked, smell the soil; find a garden alley on countryside and while you are sauntering around whistling, reach out and pick a fresh fruit from the generous branches shadowing the alley and put it in your mouth and carefully taste it; even better, spend several minutes studying the faces of people: your child, your mother, your father, your friend, a stranger, a passerby, a fellow countryman, ... don't think. Don't judge. Just look, listen, smell, touch, taste and perceive. Let the nature's message fill your mind. If you are able to experience a profound feeling from these experiences and it felt familiar, if it brought a smile to your lips or inexplicably brought tears to your eyes, be happy, because you are alive and your institution is human enough to receive the message of the universe. This is a live and invaluable message which purifies your mind, sorts it out, and reconciles it with the depths of the existence. These experiences awaken your unconscious whether you want it or not. Repetition and focus on it would change your dreams and the door to that source of pure awareness would gradually turn on its pivot so that you can roam the universe and understand it.

Try out worthwhile human experiences besides nature. The more spatial experience you gain and the more you reflect on the building on human scale, the more power and reserve our mind would gather to produce a pattern and fancy. To enrich the mental patterns, we need to always live in the moment. Don't pass any phenomena with indifference. Enter each space with awareness and constantly ask yourself how you feel. Don't be affected by the advertisements and teachings. Ask your inner self, it usually gives you the most accurate and honest answers shared by the majority of people. Sketch and write about the space along with watching it. To reach awareness and cogitation over one's thoughts, the architect must be able to explain the perceptual subject clearly. You should truly note which characteristics of the space affect you perceptually and how. If you are not feeling relaxed, check to see why. Silence the parental message which makes your mind tense, be rush, and get scattered. Take a deep breath to become present in the moment, then focus on the muscles of your neck, shoulders, forehead, jaw, hands, fingers, and most importantly your diaphragm muscle. If they are tense, loosen them up by breathing out. The tension would prevent proper breathing and intake of oxygen by the brain and would lead to the disruption of focus and cogitation and would release toxins in the bloodstream. By doing this, bring yourself to here and now and focus on the message of the space. What are the characteristics of the space inviting you in and what is the message of its architect? What kind of light is energy-inducing and what mode of lighting gives you the sense of spirituality? Is the mental pattern of the space created in your mind similar to any other pattern provoked by a certain odor? Does passing through a space remind you of a piece of poetry? Does the description of a location in a story bring a clear imagination to your mind? Does the shape, relations, proportions, and size of the

space facilitates the behavior intended for it? Sit in a corner of one of your favorite buildings and write about your surroundings. Then give it to a colleague to draw the space according to your descriptions. How similar is this drawing to your experience? How successful have you been in visually conveying your message? In order to explore similar fractal forms and relations of nature to develop your mental patterns, you can even spend hours watching wildlife documentaries or acquire a microscope and watch various objects and organs with it. Don't settle yet. Further develop your own mental patterns through experiencing music, fiction, poetry, theater, dance, hiking, tourism, ... As you are consciously attempting to experience the phenomena, don't rush to find a specific form during fancy finding. Let your mind feed on various patterns and improve them. When you immediately start to flip through the architectural magazines to find an idea, your brain feeds on those images faster than your decision. It keeps forms that might influence your future designing. The mind becomes conditioned and its wings to develop creativity and idea finding in other cases would be clipped. Leave the examination of and being inspired by others' works for when the fancy has become clear, after the peak of creative thinking. The next sections would extensively discuss this matter and what points and elements must be considered in cognition of the space in order for the spatial experience to be correct and the suitable mental patterns to be accumulated in the brain for the creation of the work. The center of attention of the second stage is how to relate the presupposed mental patterns in order to create a new pattern that goes beyond form.

After the subject matter of the work is determined and the conditions of the context are met, the most important thing is to find *the fundamental question of design*. If you want your work to be an invention not just a linear form, start from finding the problem, not the formal visualizations. To create the work creatively, first you need to recognize the fundamental problem and then find a new expression by feeding on the information present in the setting of the work. In other words, to create a system, you need to first define the determined conditions of creation by following environmental rules and precise understanding of the problem and then in that phase space, you attempt to create unpredictably and endlessly using the characteristics of chaos. Therefore, our work would become a chaotic system which inevitably bears maximum creativity. Conceptualists act exactly au contraire! That is, without understanding the problem, based on baseless data, and with no regard to environment, they indeterminately attempt to create a form and then they impose it on the function and context of the design. More clearly stating, they don't solve the real problem, but pose an independent question to their mind's capacity to create a form and then answer that question which is not even as creative as a painting or an abstract sculpture. Contrary to what they imagine as they try to give life to a creature that has never occurred to anyone's mind, the mind cannot produce thought from nothing. It requires initial data and source of inspiration to convert information in circulation to generative information. Those who struggle to create something outside the reach of others by evading their native culture, the requirements of the setting of the design, and the needs of the users of the work, find no solution other than resorting to something else entirely which might be a concept irrelevant to the subject of the design or belong to a foreign culture in order to create and this results in works in conflict with their

environment and the mental patterns of the audience. Chaos emphasizes that the fundamental problem must arise from the setting and subject of the design in relation to humankind and grants a new answer while maintaining the conditions of the first stage. You are not allowed to choose a concept for the form and answer the functional/environmental/ / perceptual needs separately.

To clarify the difference of conceptualist architecture in creating the form with what fancy intends, an example could help. The cinema campus of Mellat Park in Tehran is a prime example of a project with conceptualist approach to modern architecture of Iran. If the subject of this project was to create an urban sign or a symbol indicative of cinema, we could have considered the intended concept of the designers of this collection a fancy which have properly realized the subject with emphasis on form. Referring to the descriptions of the designers showed that their intended goal, independent of the subject of cinema-gallery, has been "to create a different phenomenon in the city to attract the attention and engage the mind of the audience". As we shall discuss in the section devoted to goal setting and finding the problem, such a problem is undetermined and vague and cannot be posed as the fundamental problem. The architect must set a determined question to create the work in his/her own scope of experience and mental patterns. So, the designers chose a very accessible concept to create the form: the name of their own company, "fluid motion". They produced a form very different from other buildings in Tehran by bending, pushing, and stretching the volume of a cube and by designing the access ports in the form of ramps, evoked the fluid motion. The general form is pleasant and acceptable in the urban setting as an unpredictable and different phenomenon and yet, is not so disorganized and undetermined to make the audience uncomfortable in movement when watching it. In fact, in the formal analysis, it can be said that this building is a distorted transparent box with the black boxes of cinema floating in it. Although the vertical walls at the two ends of the volume are cut as if the project is an infill building and not a volume in an open setting, but this cut sides retains the essence of the initial volume, i.e. a cube, which was deformed later and thus triggers enough familiarity in the audience to recognize the pattern.

So, the Fluid Motion Company succeeded to realize its determined goal while remaining suitably innovative. The volume of the campus of Mellat Park is a simple and yet different form which meets the functional needs inside and has the capacity to become a statue and symbol for the Iranian film industry. All the judges and admirers of this building were impressed by this success, are happy for this win, but chaos believes differently!

In fancy finding, the most important action is searching for the fundamental question. This problem must be extracted from human expectations, needs, and behavior in relation to the subject of the work. However, here the concept of fluid motion which can also be observed in other works by the Fluid Motion Company through curved forms and steep surfaces is a general concept totally irrelevant to the notions and patterns expected from the subject of cinema. Was the goal of dedicating 15,000 sq.m. of land to building a cinema-gallery funded by the residents of Tehran really to build an urban statue or meeting the cultural needs and promoting the art of cinema? Is the main audience of the cinema inside or outside of it? Which of the functional and psychological

needs of the audience does visualizing the name of the Fluid Motion Company in the body of the building meet?

Here we can see how the form is completely separated from the content and takes on an independent value. In this example, not just in theory meaning, but in practice physique we can see the separation of form, in the form of superficial shell of the building, from the functions and the main theme of the design. As you can observe in the plan of the building, to realize a wavy, transparent, and pure volume, the architect have put the main functions with no innovation in the middle in the form of common boxes and have wasted the surrounding space with empty spaces, excessive traffic paths and spaces with no definition, while many of the functional spaces are either removed or summarized and have thus seriously reduced the spatial quality.

Another important point is that all the justifications of the concept and finding the idea in regard to this project have always been related to the volume of the work, while half the project runs underground. The important question those who consider architecture merely form and volume must answer is that if architecture is truly just about the external volume and the form that concept addresses, what is that part buried underground called?! Is there a difference between that part and the spaces located in the visible volume? If the answer is yes, then it means that the lower part is just not architecture and lacks architectural quality. In this case, we should ask how can we call the architect who builds half of the project and leaves the rest a superior architect?! If the value of the architecture is merely in its form, was it not better to design the whole project in a volumetric format above ground and use the underground section for parking space? If the answer is no, then we can conclude that the form does not have an added value in the work of architecture. So, why all those purposeless spaces and all that funding for just a volume? Why isn't the whole project buried underground? Note that these questions don't even apply to the architect who considers architecture a human space and not a form by resorting to fancy. Since the concept, according to the formalists, stops at the level of form, in many cases, it fails to cover the whole work, but fancy is developed throughout the work. But, what is the fundamental problem of the design of this project? What could be the notions hidden in the subject of cinematic (culture) campus (complex) of Mellat (human) Park (nature) that unlike concept, fancy takes a shine to and its manifestation ensures the integrity of the form and content? To provide examples, here we briefly recommend only six fundamental problem and general fancy for the design of such a complex which are definitely superior to the problem chosen from the viewpoint of chaos:

*First Fancy:* the sustainable approach; respecting the nature, becoming one with the natural setting, and paying attention to the vital need of the polluted city of Tehran which is green space is one of the best designing solutions in this site. This way, it would have been possible to design the theaters and galleries which are among the few spaces which does not require natural light generally as a green hill alongside the park which would add to the green and public space without harming the park while enjoying a completely sustainable architecture with minimum use of energy and taking advantage of the heat and coolness of the ground.

*Second Fancy:* promotion of Iranian film industry; the art if cinema has always been one of the close and familiar arts to architecture. Wasn't architecture indebted enough to cinema to deserve more than a few common and small boxes and the

whole chance not be confiscated in the interest of creating a pure volume? Truly, what is the responsibility of a constructive architect in the times when the art of Iranian cinema and its artists are homeless and disorganized and the film industry is on the verge of bankruptcy? The dignity of cinema in Iran has declined to the degree of a recreational pastime with no purpose. Is it not the place for the architects to think deeply and convert cinema and the complex associated with it into a place for thinking and reflection and discussion? In the design of the think tank, the seminar halls, library, and the specialized space for selling movies and music and even a tea house fit for social interaction and information exchange would have been one of the best fancies of this design. The architect of the complex has considered an arched space under the complex between the two entrances the main achievement of the project for the city and a place to talk and exchange ideas, holding ceremonies and various cultural and social events! It means that in the whole 15,000 sq. m. of the infrastructure of the complex, no place was dedicated to these programs and the filmmakers and culture fans must stand in a place which actually is a crossroads for entering and existing the park and the two doors on the sides of the complex and exchange ideas! Right where the building lifts its skirt from the ground, the stretching and curves of the façade are posed in a way that guides the cold wind of the West in winter and the warm wind of the South East in the summer to the entrance cavity. What ceremony are people supposed to hold in the draft of wind?

*Third Fancy:* consideration of culture and collective memory; on the global level, paying attention to the history of the cinema in the design of cinematic complexes has been one of the popular fancies which feeds on the collective memory of the people of the society. Such an approach is capable of memory building, preserving the civil ties and ensures the cultural continuity and leave a profound effect on the cognitive and cultural level of the audience. The first motion picture was found in burnt city of Iran. The most important book on Iranian mythology, *Shahnameh* (The Book of Kings), embodies the best and most beautiful scenarios and had a special position in the art of storytelling, illustration and narration of the civilization of Halil River in Kerman to Elamite to Achaemenid and Sassanid art of Iran. Dramatic narration and dramatic arts have long had a high place among Iranians and this country was one of the first nations who welcome camera. All these ideas can initiate a cultural fancy which could leave a grave impact on the cognition of people and eternalize the position of architecture in the hearth of people.

One of the thought provoking reasons of the architects who called themselves pioneer in justifying the lack of attention to the cultural setting for creation of the work is that the culture of society, particularly in the field of architecture is declining and so the architect holds him/herself responsible to get rid of this situation with innovation. Of course, this is a legitimate claim that signifies the mission of the artist in the society. However, as was stated in length in the description of culture, aesthetics, and art, the artist is not the one who merely attempts to destroy and cut a current by innovation based on taste, but who consciously rehabilitates the notions and promotes the perceptual-cognitive level of the audience by his/her scientific reservoir that goes beyond the level of society.

*Fourth Fancy:* creation of cinematic campus; although this collection is called a campus, there are not much variety of functions related and associated with green spaces or the possibility of development. Spaces like open theater, photography, filmmaking, acting, etc. workshop, picture house, practice halls, advanced cinematic auditoriums, a section for selling movies and music, digital library and virtual spaces and many other facilities which are now in trend in many countries and are expected to exist in a place called campus are lacking. Even those limited facilities that do exist are completely co-dependent due to the accumulation in one volume with limited entrances and access in a way that they don't have the possibility of segregation and separate heating and cooling. Meanwhile, if the complex was designed as independent units, more revenue would have been gained by different audience at different times.

*Fifth Fancy:* the black box; theater and exhibition are exceptions in architecture which can be designed with no regards to natural light at all and in the form of a closed box. We may dare to say that solving the problem of lighting, divisions, and deployment of the windows is one of the most important challenges faced by architects in designing the shell of the building. This project was not only the best opportunity to create a volume and urban façades in terms of the external and symbolic needs of the building without having to worry about opening and skylight, but also it was the best chance of energy saving. In the design, the building rotation towards South-West and the integrated glass coverage of this side causes the building to experience the longest periods of hot sunlight radiation and absorption in summer and the longest exposure to the cold wind of the West in winter in Tehran and the most amount of energy be wasted in order to better control the optimum conditions inside. This is while this wide glass façade does not provide better view from the inside and doesn't have lighting value. The concrete surface behind the glasses absorbs heat during the day and releases it at night which creates a heat island.

No one would have blamed it if the entire façade of the complex would have been turned into huge digital screens to advertise movies shown and the authorities wouldn't have had to plaster movie posters all over the installation systems. Cinema is a visual art and using internet and IVR to get information about the schedule of the complex does not provide an excuse to eliminate visual facilities. If the passerby can easily be informed about what is on display in the gallery and the cinema halls with the help of the architecture of the building, there is no doubt many of them would change their daily course to visit.

*Sixth Fancy:* innovation in the structure; the sudden cut of the two ends of the building, wide glass walls and curved ceiling of the complex create an expectation in the audience, that an important structural event underlies its design. However, we can see inside that the same conventional system of beam and column forms the skeleton of the building and the architecture has merely covered it on the most superficial level. For instance, if this complex would have been designed inspired by the suspension bridge structure where the end walls were actually functioning as its bases and the ceiling would have been turned concave based on tension cables like a light shell due to the structural behavior and for the same reasons, the side walls and the whole interior space, particularly the last floor which is now resembling a forest of multi-branched pillars would have been released, the same form would have truly turned into an



architectural masterpiece which was really formed based on the structural behavior and would have left a good cognitive impression on the mind of the audience of perceiving a worthy solution to the all-understanding problem of gravity. Then, merely freeing the interior space of structural elements and creating a coherent view without the barrier of pillars would have been a great achievement for the complex.

These six recommendations are merely examples of fundamental problems which could be posed for such a project in order to find a fancy. However, the inherent conflict and the separation of form from content via conceptualism which ultimately led to the deconstruction of the subject, function, and structure of this project is not just manifested in its general approach but also in the micro-concepts; transparency and selection of the wide glass surfaces is one of them. This selection, while undermining the audience's mental pattern of the expectations from the subject of cinema, doesn't bring any added value to the design because it would be internally questioned itself by other factor. Logic dictates that spending so much money to use glass and maintain it for a space that doesn't require light was so that the audience would be able to enjoy the view of the park and the northern mountains of Tehran. Therefore, it is expected that proper pause space would have been considered behind this glass curtain. However, when we enter the complex, not only the view is severely damaged by structural elements, but the entire space is designed with movement and circulation surfaces or wide gaps near the walls and thus, the observer is always either moving or too far from the view. Especially, in the restaurant where the view of Alborz Mountains is soothing and pleasant, from most angles, intimidating multi-branched pillars obstruct the view. The true tragedy is that despite the wide light absorption surface, the waiting halls and the spaces dedicated to the staff of the complex which is stashed at the two flat ends of the volume to preserve the form are completely deprived of natural light and view! In fact, in this design, glass was not used to absorb the light or present a view but just to induce the sense of lightness and transparency to the audience outside in line with the concept chosen for the project. We can see how the formalist view of the matter of transparency in architecture instead on focusing on function and zoning and the behavioral, psychological, and perceptual needs of the users causes deconstruction.

Somewhere, another writer, independent of the comments of the designers of the complex, defended the design of the cinematic campus by a very superficial interpretation of the definition of phi in Gestalt theory believing that the form of the building is a perception of the motion frozen between two fixed frames and so related to the subject of cinema. This justification that shows the writer considers architecture nothing more than a form is a very interesting example of deconstruction as was mentioned in the example of teapot and house of tea. As the teapot, in a direct association, is a symbol of a tea house, but it cannot necessarily account for the content and function of a tea house. The visualization of movement between two frames, even if motion is defined so in cinema, cannot create an architectural space and is thus, not suitable for a cinematic campus even if it is proper for a cinematic statue. The manifestation of a real notion in the work and recognizing the proper solution to a fundamental problem in regards to the subject is a requirement for a natural mind and developed wisdom. The audiences need a meaningful experience to

promote their cognitive-perceptual level, not just seeing forms created for superficial and irrelevant reasons. In the project of cinematic campus, we can find an instance to prove this reality: the main designer of the project considers the arch beneath the building its pride and turning point more than any other section. Why? Because it's the only section which is formed due to inherent and real reasons as a result of the slope of the floor of two cinema theater facing each other, and integrally accounts for the behavior and expectations of the people, function, structure, and notion. This is, by itself, evidence to the fact that the mind always looks for the perception of meaning, unity in plurality, and actual existential reasons in the formation and recognition of the patterns.

The works of formalist architecture are more dangerous than the common buildings which merely follow the rules and functions because they deconstruct not only the building but also the minds of the audiences. The most a user expects from the common buildings is the provision of function, but formalist buildings deceive the mind with their deviation from the fundamental problem and focusing on divertive subjects. It's easy to create beautiful forms by observing the balance between determinacy and unpredictability or to produce much attraction by increasing the unpredictability. These works attract the audience just as statue would because they are unexpected, while their form is not based on fundamental reasons and content. People get excited when they see a different appearance, but this experience would cause cognitive resilience solidity and a decline in brain's perceptual level because the enquiring mind who was used to look for a sound meaning and reason under any form and phenomenon wouldn't need to do that and would get used to this superficiality. In this way formalism breaks the back of thought and culture. A mind turned lazy would not be able to perceive and recognize and maintain culture anymore. Those who accept that form can be created with independent value and without a deep concept and subject would regard Persepolis and Hafez's poetry the same way and would never reach its depths. So, they are easily deceived by getting used to superficiality and would be subjected to colonialism because they neglecting their values.

Anytime you put aside the imposed approach of formalism and decide to return to the endless expanse of the nature and the unknown depths of the powerful and meaning-seeking mind, you'll find the most creative fancies and the most humane ideas for architectural design. Unlike concept which suddenly appears on scene with no precedence and origin and solves no problem and provides no criterion for judgment, fancy is created as the backbone of the work after careful proposition of the fundamental problem, brainstorming, and development of creativity and then, would be polished through reference to concrete realities such as the subject and the conditions of the first stage.

To recognize whether there is powerful fancy underlying a certain work or a formalist concept, you just have to ask about its existential reason when you see it: "why?" if the answer ended it the form of the volume without accounting for any fundamental problem or even worse, if it failed the function, the environment, the expectations, and the spatial behavior, then it is a concept which at best, can promote visual pattern formation, but if you found an answer based on reason arising from the conditions of the first stage, the subject of the design, the behavior of the users, and real pattern formation which provided a new and different

solution, then it is a fancy worthy of exploring. The architectural work is the language of the architect. The important thing is that s/he transmit his/her message through the building to the audiences which represents the depth of his/her awareness, cognition and commitment rather than generating meaningless sounds beyond the shared language based on his/her taste.

To find a fancy and define the process of the creation of the work, once more, we will focus on practical methods of creativity described in Cognition Chapter so you can understand what other items can affect fancy finding besides formal mental patterns.

### 3. Objective Setting and Problem Finding

It is essential that the goal of the creation of the architectural system be determined. First, examine the origin of the request made to find the challenges and explore all the respective information sources. Don't be afraid to develop ambiguity in this regard. Although questioning the form is also useful and could take priority in subjects such as memorials, or chain agencies (banks, hotel, etc.), but since it should conform to the conditions of the first stage anyway, it is recommended that start the idea finding from the subject of designing. The most important source of information lies within the subject itself.

Fancy finding and patterning start with focusing on the subject of the project in its context. Remember that in addition to bearing new information the architectural design must have a cognitive background among the audiences so that the architect's message is properly received. So, scrutinize the architectural subject consciously in relation to human. Every designing subject bears familiar mental patterns which are considered the best sources of fancy finding. The best way to discover these patterns is to go to similar spaces and take note of the spatial behavior of the people and also the functional and spatial deficiencies to find a solution for them. The hidden patterns borne by the subject of hospital must be healing, curing, peace, inducing hope, openness and protection. To design a school you focus on notions of education, support, friendship, unity, companionship, curiosity, searching, energizing, etc. In the design of a chapel, it is a question of how to show mercy, ascent, lightness, devotion, respite, exaltation, etc. focusing on any of these patterns would lead you to a very different option. Even the common mental pattern might be very different based on the beliefs. You might perceive end and nihilism from presence in the cemetery of the Saudi Arabians, and yet, clearly experience the belief in life after death and life from being present in the Iranian tombs and paying attention to the ceremonies. It should be emphasized that experience the feeling of presence in the location and reflect on the ceremonies and the behavior of the users so that their world open up to you. If you can't go to the place, close your eyes and think about your own behavior in it. Even this is better than flipping through magazines. It provides the spatial experience of the patterns and notions that have much more capacity of abstraction and creation of new spaces than forms because they can be guide to other different shapes and notions and be interpreted in different ways. You can find out the advantages and deficiencies of a space based on the behavior of people and search for the fundamental problem of the design and optimal solutions beyond the scope of your experience, but seeing the pictures of that same space would never help you understand the perceptual effect of the said forms on the space and the behavior of the audiences of the

building. Thus, unconsciously, you'll imitate what you see and even if you change it, you are still not aware of the spatial effects of this change.

Deeply reflect on the subject of the design and start to ask about its main objective. Your questioning of the subject could start with a superficial question and approach a more fundamental problem step by step. Always clarify the matter with asking "why" of the initial subject several times. Guide each problem that comes to mind to the next stage by asking why until you reach an original, targeted problem. The question of why from a superficial problem and narrowing it down guides you to such fine aspects and such deep layers of the problem that in the end, you'll be facing a fundamental problem which might not be closely related to the initial superficial question.

Such an attitude towards matters and analyzing them is useful in the designing of the project but it's even more useful in the social relations and in the course of life. We are always put in situations where we merely feel uncomfortable in but our habits and linear training prevents us from creatively discovering of the problem and solving it. This point is especially important in living and work environment. Generally, people are always unaware the optimum condition and how to achieve it. They sit in dark rooms, with bad ventilation, behind unsuitable desks, in wrong direction, in the electric field of various appliances for hours while their natural institution is constantly trying to escape that environment. However, their minds have been rendered linear and won't look for a fundamental problem and try to solve it! Perhaps, by changing the light and color of the environment, the orientation, etc. we can have the optimal condition but even architects don't think about these fundamental problems! Most designers leave the fundamental problems of comfort and pleasure of humankind in the space and seek to make forms and decorate the rooms! Few pose the fundamental question of "what is the existential purpose of this space?" In order to avoid deviation in idea finding, the best question to start the designing with is to ask yourself: "what are the conditions and needs for which this project should account?" This question makes you pay attention to the environment, users, and their needs and behaviors which are in fact, the main subject of architecture. Reflecting on any of these factors can provide us with a fundamental problem for the design.

*Proper development expansion of the problem* is also one of the key points. It is at this stage that we should consciously link our various mental patterns together. We need to reinforce our understanding of the main objective by examining the broad definitions which can be provided for the problem. Before trying to find the optimal answer, creative cogitation thought attempts to tear open the subject and the creative design of the question requestion the problem creatively. A practical way is to change the way to pose the problem. Always try to pose your final problems in different ways so that their hidden talents are revealed. This method is effective for any artistic and scientific creation. For instance, this book was created to find the answers to various questions in architecture, then reflection on the interaction of people and the space, focus on human perception and cognition and ultimately, proposal of seven stages, each of which are divided into many sub-categories on different scales.

We can discover the potentials of the main problem with as simple an action as changing the verb in a question. For example, changing the question "how can the cars be

parked?” to “how can the cars be stocked in one place?” in designing of a public parking lot led to the change in perspective and releasing the mindset of the traditional method of parking cars in a space on the same level as the street. Thus, combining the definitions of parking and stocking led to the invention of multi-story mechanical parking lots where vehicles were transported and stocked like goods. This is a prime example of the pattern relations which are not merely visual. The result has undoubtedly led to the invention and innovation in architecture while meeting the real needs which is far more important than form making. In such way a work is born out of its subject and ground and cut off from it then builds its own world and context of influence.

One of the most important architect's responsibilities is paying attention to the specific needs and behavior of the user of the space which leads to the creation of a unique design based on the unique human behavioral characteristics. Undoubtedly, the requirements, quality, dimensions, and usage of the space is different for every different user such as a musician, a doctor, a painter, a man of God, a sculptor, an athlete, a programmer, or a mother with two kids in her care. Let's think for a moment about how is it that we always make do with our own experiences and knowledge in the designing of a house and ignore this boundless potential of fancy finding which stems from the identity and needs of the user created by us and of course the fundamental problem of the design? Rather than waiting in our design office for a revelation or a sudden presence by gazing out the window with a coffee cup in hand, we need to pick up a pen, a notepad, and a camcorder and go see our employer in his/her current place of residence. If you want to create a human space, you need to study the details and put the audience in the center of attention like the director of a movie. Two important tasks in designing are consultation with the users and examining the current situation like a detective. During consultation, ask your employer about his/her interests, problems, and the nature of their behavior in the space. The interests and tastes of people are under the influence of fashion and media, but the disorders illnesses and their real behavior reveals their basic needs and deficiencies. If you are familiar with Vastu (Vedic) architecture or a branch of psychology, you can acquire a lot of information regarding the real character of the members of the family and their needs by composing a questionnaire. Then inspect the status quo. If you see the East and North directions of the building are blocked, a highway or high voltage cables are located close to the building, a hill or valley is near the building, the shape of the ground is uneven, or a pet welcomes you upon your entrance to the house, the ceiling is lower than usual, the books are piled up in a corner, the house is filled with the smell of food, the curtains cover the windows during daylight, there are many pictures decorating the wall, the musical instrument is forsaken in a corner, a certain part of the easy chair is eroded, the landlord has backache, there are a lot of things scattered in the bathroom, etc., don't just ignore them. Be a good detective and consider each of these events to be a lead to the story and the fundamental problems which must be solved by the new design or the renovation of the building. If you truly have a higher cognitive level and creativity, you'll be capable of not just designing architecture and solving the family's problems, but promoting their cultural and cognitive levels. If you can't find any plants or work of art or handicrafts in this house, propose your design in a way that it would encourage them to use these and get in

touch with culture and nature. Low light in the house is most likely indicative of a barrier outside blocking the lighting and the dejection of the landlord. Pay special attention to lighting methods. The forsaken musical instrument tells the tale of a dead interest. Provide an opportunity in your design to excite the owner of the instrument. Imagine the motion, spirit, and function suited for the house of an artist and his/her activities, the light and freshness suited for the house of a doctor, the peace and cleanness suited for the house of a man of God, the order and organization suited for the house of a programmer and the tenderness and flexibility of facilities for the children suited for the house of a mother. These are the main fancies of your design, not the thinking of deforming the walls and façades and the ceilings! Considering the needs of all the members of the family gives us a lot of information to integrate and find a main solution. However, most architects give these entire users a map that is the result of their own creative selfish taste and would undoubtedly be so transformed by the users that the role of the architect would be reduced to being merely a cartographer and the spatial divider in the whole volume of the house!

Now you understand how easily you can create unique spaces by considering the environmental conditions and the subject of the design and consulting the employer and understanding his/her real needs. These matters must be scrutinized from the whole to the components of the space. In designing a bedroom, reviewing different magazines and looking at pictures of rooms in different countries won't help you design an efficient space. Using a default standard space and common furniture is also not a big deal. By understanding the real conditions, you can change the subject of design to a new problem, answering which would lead to the creation of a new work. For instance, you know that the spatial quality of a room with lighting from two directions is considerably more than a place with a single direction of lighting. Therefore, the problem of your design would change to the matter of “how can we let light in from two directions?” Go to the building site under design. You might see there is a beautiful view in a certain direction and a noisy highway in the other direction. Then your problems would be developed and determined by “how can I create a good view for this space?” and “how may I prevent the penetration of noise pollution?” In this state, even if your form is the most distorted and complex of the forms, it would be beautiful and acceptable because it arose from a real and solid reason. Meet and consult with the employer. S/he might be interested in reading, watching TV, talking to his/her spouse, reviewing his/her daily works, etc. before going to sleep. Then provision of the space and furniture to meet those certain needs would be added to your problems. Similarly, you can also expand each of the problems to design the sub-spaces. This is the only way you can design a different bedroom. With enough money, anyone can buy expensive furniture and use unconventional forms and colors to create a space impressive at first sight but unpleasant and vulgar in reality which would leave a very destructive effect on the soul and behavior of the user in the long run. Note that the stage of composing the fundamental problem is not just clarifying the subject of the design. Beyond that, it entails your attention and change of attitude towards the reality in order to promote the awareness and elevating the brain to the level of creativity. So, don't ever start your questioning with undetermined and broad problems like “how can I design an unprecedented form?” or “how can I propose a design which no one has ever thought

of?” The ambiguity and inefficiency of these questions would lead you to futile answers, while regarding a question which sounds common and too determined and obvious like “how can the building be deployed on the ground?” in a new light as if it’s the first time it is ever posed could guide you to very complex and new ways in designing the structure and building. This question can made you focus on your stance on the ground and be inspired by the human physique or focus on the grab in the ground and be inspired by the roots of the trees, or focus on shift to lowering the height of center of gravity of the building and creating a design which is extended on the ground like a pyramid and how to defy it with a strong electromagnetic force, for instance, which ultimately would result in a structure floating over the surface of the earth! Creative cogitation is like that: a way of thinking which didn’t exist before and practical creativity is finding a new answer to a common question.

At this stage, you’ll notice that limiting idea making to the conditions of the first stage and problem finding in direct line with the subject of the design is not only not limiting, but it deepens and develops the subjects of your thoughts. The numbers of questions you can pose for fancy finding are infinite if you count their development! Due to sensitivity to initial condition, when you consider a question the key factor after expanding your point of view and add more questions to it when creating each sub-space, the number of variables in the limited conditions would grow so much that you won’t be able to find an answer compatible with them all except through chaos. Therefore, although you follow determined frameworks, your design wouldn’t be similar to that any other and your creative potentials would truly be released. From this, we can understand why the industrial designers can present their product more creatively than conceptualist architects; usually the subject being designed by the former is composed of limited components and definite form which limits the scope of search for the fundamental problem. It is because of this limitation and determinacy of the boundaries of search that industrial designers are capable of recognizing the fundamental problem, deepening and developing it. Meanwhile, the subject of architecture and its subsets relating to the environment and users on a scale bigger than human is very broad and the fundamental problems variable and different. Many of the architects feel so hopeless in the face of this broad range that suddenly, they decide to choose a divertive problem in regards to form by impressing the mind of the audience unexpectedly and diverting his/her needs and in other word, erase the problems all together! Obviously, leaving the fundamental problems of the design unanswered or presenting a common answer for it is not acceptable from the viewpoint of chaos and creative thinking.

#### **4. Fancy Finding**

The brainstorming and the unpredictable stage of idea finding begins here. Now that the fundamental question and the objective of the architectural system are determined, we can freely nurture any imagination. Consideration of environmental frameworks and the subject of the design underlie the heart of the fundamental problem to automatically form control the ideas. Then you don’t need to limit your mind at the stage of fancy finding. In drawing chaotic systems, that shiny spot appearing on the monitor erratically anywhere within the phase space is our mind which randomly leaps to anywhere, but gradually the pattern will be born out of disorder. The stage fancy finding which can take place during sleep and with the help subconscious is

our only hope to return to our natural essence; a space truly chaotic where anything is possible. Don’t think about impracticality or the craziness of your ideas. The biggest limitation of the designer is the boundaries of his/her own imagination, the amount of his/her creativity and his/her cognitive-perceptual level. In any new project, try new approaches and create different patterns. Don’t ever try to create a superficial style and the unity of procedure in the form. Don’t turn any idea into tradition because it would become devoid of any information. Any project is a chance to rethink the world and promote the thoughts of the past. Only the rigid and linear minds would repeat something. Repetition of the form in order to register a style of architecture is of course a method many use to become famous but the truth is that mental patterns of these architects have solidified due to laziness and repetition. It won’t change. It can’t be promoted. It can’t adapt to variable conditions. And it is not capable of connecting with other patterns. It is not able to search for an optimal solution. It has found an answer and is sticking to it. Most architects repeat one form or element without any existential necessity, with no regards to the environmental and functional requirements in all their designs with difficulty. They are not excited to deal with the context of the design. As if they have put too much effort to find this form and it has drained their brain! One of the wonders of these times is that the same architects who repeatedly use one form for any subject are considered creative architects in today’s society! It’s as if every time you ask someone the address to a different place and every time, they give you the address to their own house and you just admire their creativity and ingenuity! The only problem these architects are trying answer is how to impose their trumped-up form to different subjects and habitats which is always a waste of money and energy and is in conflict with the mental patterns of the people and the with the setting context of the design.

The best way to find different and diverse fancies to manifest various usages of the subject of the design is to carefully examine and study the conditions of the first stage of the project, anthropometry, ergonomics, and more importantly, the behavior taking place in the space. Understanding the climate, culture, and architectural elements of any country can provide us with unique ideas for delivering new usages to a fixed space like a residential house. Based on these key factors, no two houses would be the same anywhere in the world and perhaps many inventions to promote the forms and functions would occur in this regard. And yet, if you surf the net or real take a look at the architectural magazines, you can see that today, anywhere in Iran, from North to South, and from a cold climate like Ardebil to a hot one like Kish Island, villas are built the same shape and even that shape is based on a Western model.

To return to the true place position of the creative architect, temporarily put aside the usual logical inferences, common designing solutions and your past experiences at the stage of fancy finding so you can have a different look at the phenomena. Let the brainstorm and chaos fill your brain and the variance of turbulence reaches its high limit. Meanwhile, enter your new data. Maybe, in the next few days, you’ll reach a stage where any subject you hear and anything you look at would bear a hidden fancy for you. The mental system will reach its highest degree of disorder, many factors and elements would clash. The creative mind is the most chaotic one which has the capacity to create infinite new information from these turbulences and confusion. One of the

characteristics of creativity is the ability to form a link between information which would appear scattered and unrelated to others. In terms of chaos, the creative mind can establish complex connections between its different perceptual-cognitive patterns and analyze any unfamiliar phenomenon with the help of familiar pattern and in reverse, explore any familiar phenomenon from a completely different and novel perspective. So, it has the power of criticism, multi-faceted view, and conversion of information in circulation to generative information. You'll have to become someone who wouldn't regard the leaves staying on the branches or the sun rising as common anymore. Break down all your self-centered thoughts. Under the shower, in your sleep, and during swimming, look for subconscious information. Stop judging. At this stage, don't judge any of your ideas. Let various mental patterns and different aspects of the phenomena to grow on you. After some practice, you'll see that the brain automatically does these at all times. For a while, let the initial brainstorm and chaos act freely in your mind and don't judge their practicality. Let your brain recover its abilities. But also note that, in chaos's terminology, brainstorm means seeing and thinking differently and unusual linking of mental patterns, not just breaking up all the structures. At this stage, you should neither be rigid in your thinking nor deconstructivist. At the first, the brain would go after association or linking the phenomena based on the fixed patterns arising from habit and experience or will be stirred towards destruction and disorder to avoid the same. To guide the mind towards chaos in order to achieve new patterns and avoid linearity or randomness, you can use the 10 practical methods of idea finding mentioned in Cognition Chapter, under the section of creativity:

### 5. Put to Other Uses

In your search for the optimal answer and also develop the fundamental problem, you can focus on different usages of the subject under design. For instance, if the subject of design is a common office building, you may ask yourself: "what other usages this work could generally have?". For example, "could it also be an urban sign or an advertisement billboard? Could it be a big wind breaker catcher or a huge waterfall? Could it be a national emblem monument or a live green volume? How can it display the type of activity within it? Etc.". the thought of a house as a car was the result of this approach. The idea of using full glass façades for tall towers near old churches was in fact, creating a distinctive new usage as mirror to show off the historical building and tune down the presence of the new building.

Such questions can be repeated in any part of the design on different scale so that a new and dynamic system is created by developing the problem and its answers in any subset. For example, the entrance could be in the form of a system and we don't have to limit its usage to mere entering. We ask ourselves: "is it possible that the entrance space would also be resting or meeting place? Is it possible to design it in a way that it can totally change the mood of the visitor? Could it be a statuesque volume itself? Could it be an exhibition? Could it provide a proper visual opportunity to perceive the main volume of the building? Could it be a refuge for rainy or sunny days? How can we install a proper place to keep the shoes in? etc.". Or for the function of the window, instead of being a hole on the wall, we could think of other uses: greenhouse, dovecote, ledge, balcony, mirror, virtual landscape, a place to absorb solar energy, resting space, charter for separation of light, allowing the rain in,

noise and air pollution filter, heat insulation, reflecting light to the ceiling, controlling the amount of incoming light, etc.

Maybe it wouldn't always be possible to be able to reassess and change the function of the whole or major parts of the space, but still, getting mind into the habit of considering multiple aspects and discover the potentials of the place would make it possible to use any simple subject as material for invention. After a while practicing, the best for which is via student projects, your mind would get used to thinking this way and at the time of designing, you won't need to clearly state the question but you would unconsciously create it.

If you are after creating unity of procedure or a signature in your work, this type of thinking is one of the best ways to do so. You don't have to necessarily work on a project to think of these things. You can think about the elements of architecture, and pile up new mental patterns in your mind. The ceiling was one of the important elements in the ancient architecture of Iran which was always the location for displaying the arts of the architect, innovation and different usages which was not only a shelter, but a mirror, a skylight, a painting, a statue, the centralizer and controller of sound and ether, thermal insulator, the main distinctive feature of the building volume, an urban sign and the place where innovations in the structure and geometry would appear, etc. my favorite element in designing is the wall. Besides being a two-dimensional separator, a wall has many usages. The spatial behaviors and needs of its two ends sides and the thickness of the wall can provide many possibilities for this seemingly trivial element. The wall, besides having the potential to be statue itself, can contain different functions including closet, cabinet, mirror, vitrine, window, acoustic and thermal insulation, ventilation, lighting, flower box, library, etc. at different heights according to the functions of the spaces adjacent to it. In interior architecture, with the right design for the wall, we can accommodate a wide spatial capacity in a fixed space. So, I always design the interior and exterior walls in the shape S and thereby, sign it. This section might be included in the plan or the vertical cut, might be executed broadly, or just be limited to the pier thickness of the wall. This form transforms the wall from a two-dimensional surface to a folded shape which creates different spatial accommodations for the respective needs on both sides.

### 6. Borrowing

Another method of fancy finding which is very common is borrowing. Getting inspiration from others' works and from different phenomena to create a specific form or quality is very popular among architects. The architects known as postmodernists are most interested in borrowing from historical monuments and natural shapes. In some cases, like designing a view and landscape, the designer is allowed to freely borrow ideas from anything. Since the view is itself a subset of the natural system, you can get inspiration for the design of any part of it from any fractal object because the fundamental resemblance of these systems automatically provide the conditions for guiding the designing towards a chaotic system based on Feigenbaum's universality. On the other hand, if you use a geometric and linear pattern like the Persian Garden, its inevitable elements including the plants, the water, the soil and rocks, natural lighting and the presence of animals would give your design the necessary richness. In practice, using simple geometry is more suitable for the design of green space, because it creates determinacy on

macro-scale and on micro-scale, the fractal nature of nature would provide you with unpredictability.

Borrowing is an appropriate method to ensure the cultural continuity while creating diversity. Followers of traditional architecture recommend that we use elements of the architecture of the past to preserve the cultural continuum, but they don't say how it is possible in different times, so, this recommendation would merely result in the repetition of forms- not in its excellent authenticity though- and at best, would end up creating similar spaces and would be condemned for resilience. However, borrowing is different from superficial repetition of the elements. Borrowing means discovering the relations. Reflect on the elements of the ancient architecture and try to use it somewhere else, based on the formal, subject-related, or functional relation and in accord with modern technology. Using a phenomenon in a different form can easily help you gain access to pleasant phenomena, i.e. *objects* which are both determined and familiar, and novel and unpredictable. To borrow from something, you need to find a cause, relevance, continuity or similarity between the subject under design and the inspiring phenomenon and connect the two based on that so that the mind of the audience notice the aim and your borrowing and by perceiving the similarities and differences of the two, be promoted to the higher levels of perception, and feel pleasure.

#### **7. Adjustment and Change**

This method is the creative power which over the process of evolution, from unicellular being, created in the form of very different types of organisms. A conservative and safe solution for the creation of a new design is gradual change of a crude design instead of producing scattered ideas.

The focus on physical programs and adjusting it to achieve a flexible program is one of the most important measures strategies which beyond dealing with the form, generates many fancies. Concerning the shape of the building, you can also merely prepare an infra-design or skeleton frame work of the design in the form of a simple cubic volume and then gradually, adjust it in response to the context conditions or change it based on the fragmental ideas which are extracted from the questions in response to certain conditions of each parts. This way, gradually, your raw volume would be unpredictably transformed with flexibility in the face of real conditions imposed on the architecture to something you wouldn't have even imagined before.

#### **8. Maximize or Minimize**

Minimizing was a method used by inventors over the years to achieve desktop computers and flat screens and small appliances and today, architects must benefit from it to design small houses and spaces with quality. Regarding maximizing, in most cases, we can design many attractive ideas by strongly introducing an element, enlarging the form, adding additional attributes, multiplying and amplifying and exaggerating. It appears that the symbol of Azadi (liberty) Square is itself a much enlarged sample of the famous Iranian *Mogharnas* units which has landed on the ground upside down.

#### **9. Substitute**

Another method for gathering more ideas is replacing one thing with another. In this context, questions asked are like: "what can we substitute it with?" In this method, it is basically possible that the direct intellectual foundations be transformed and messy mental patterns be generated, but that group of ideas which have always remained too far to be accessed flourish at this stage. In substitution method, we are

not looking for other uses. We are rather looking for different solutions to improve the intended function and facilitate the behavior in the space. Substituting metal gears with fluid led to the invention of hydraulic steering wheels in cars and replacing normal gear with helical gear to transfer the movement to the wheels in trucks led to a cataclysmic evolution. Substitution is an appropriate method to create diversity in qualities like material, color, texture, size, etc. with the help of this method, a glass dome might replace the bedroom ceiling, air be used in walls instead of expensive insulators, gel-like and flexible materials replace solid walls, removable and folding stairs replace heavy and space-consuming stairs, the electrical energy resulted from our movement replace electricity, wallpapers with changing designs be invented to replace normal wallpapers, glasses which are transparent during the day and opaque at night come to fashion, the light of the room change with our mood, the walls of the house open and close according to the difference in the temperature of the outside and inside and thousands of other inventions may occur to meet our common and daily needs.

#### **10. Reverse**

In the generalities of the designing, the most important application of this method is to reverse the thought process of designing, i.e. reversing the role of cause and effect. For instance, if in the design of a landscape and green space, we are always trying to design the project and then present the product to the users, this time, we can use the behavior of the users to design. In order to do that, we can present the users with raw material and study their behavior. For example, before designing the intended open space, we can sod the ground and by examining the amount of its erosion in different parts, study this subject in which paths users usually move, pause, rest, and meet and ask about what items from the person in charge of the park; then, based on their negative feedback, we can design. Reversion can also be used in the formation of the space in any regard, including reversion of up and down, opaque and transparent, long and short, dark and bright, etc. to solve a problem or merely for triggering cogitation in the audiences and promoting their perceptual level. For instance, think about what would happen if in the façade, the space dedicated to windows is filled and the space for wall empty. Or if the windows were near the floor instead of up on the walls, etc. As we explained in the Cognition Chapter, the computation in the brain is triggered from the perception of difference in similar things and similarity in different things and cogitation arises from the perception of unity in plurality and the diversity and vice versa. By reversing and reflecting the similarities in different parts of architecture, we can force the mind of the audience to compute and cogitate and enjoying it. Just as the mind enjoys watching the autumn leaves which have always been up on the trees beneath one's feet and the same way the architects of the past painted the design of the carpet on the ceiling or displayed a different face of life by placing a mirror on the ceiling. Even if the audiences do not consciously take note of these measures, their mind does notice and would successfully promote its perceptual level.

#### **11. Combination**

From combining different mental patterns and different methods of creativity to combining different arts or combining different functions, spaces and forms, this method is well known among architects for idea finding. But if we learn to consciously and purposefully use this method, we can

take advantage of the environmental facilities and other methods of creative solving of the problem in a controlled way. For example, it's possible that an interior designer take advantage of other arts like painting and sculpture in his/her work through experience by getting inspiration from classical styles, but don't consciously benefit from combining the arts and thus, never acquire the power of innovation and change in his/her work. However, if the designer seeks the existential nature of these arts rather than imitating the classical works, s/he would see that their authentic beauty is the result of the mastery of the artist over the arts of his/her time and managing their appropriate combination. With such an attitude towards substitution and combination of modern art and borrowing from our native culture, we can suddenly achieve creative power in design whose beauty equals that of the classical style yet is unique and innovative.

In the design of each part of the architecture, we can use combination to achieve innovation in the space. Combining kitchen and dining room resulted in open kitchens. Combining work and residential places made the integration of work and life a pattern. Combining the roof and garden established the roof gardens. Also, it is possible to combine bathroom and bedroom, pool house and the living room, dining room and garden, gym and recreational center, parking lot and a cinema, garden and restaurant, porch and sleeping space, lake and house, sea and hotel, cave and guesthouse, etc. to create new and multi-functional spaces.

Given the diversity of form making, contrary to what you might expect, modern life has become more rigid and devoid of creativity than before. In modern residential houses, although most of the activity of the members of the family is done in the rooms and so, the rooms must account for the combination of several activities, the designers design cramped and inefficient rooms which would be filled just with the bed and no proper space would be left for doing homework, play, exercise, changing cloths, watching TV, etc. in there. This is while most of the year, the living room and the guest room with the furniture and big dining table occupying it is left useless. In old houses, even if the family has only one room, its circulation and furniture were cleverly designed to multi task. At night, the bedrolls were rolled out and during the day, it was rolled up to make room for other activities. In many regions like Gilan, there were burners in the corner of the house where the tea and food was made and the high ceiling and low threshold helped warm up the space through that small burner. The thick walls were not only thermal insulating structure, but also provided the possibility to design shelves and upper shelf racks to place many tools there. In other words, back then, the wall was not simply a separator of two spaces which was not even capable of preventing the sound to carry, but a statue combining full and empty, color and texture, memory and reminisces.

The author's maneuver to optimize small spaces is to design the separator walls in the form of an S, designing the decoration light, multi-tasking, and removable- which might be formed from several separate hollow wooden cubes- and design the dining table dividable to two or three pieces in referring designs every part of which can be used in the kitchen, work room, or four-seater dining room.

## 12. Attributes List

Making a map or list of components and qualities of the project under design is an analytic method for recognizing the ways the products and services can be promoted. In this method, the list is made of various sections and attributes of

the subject under design, then the function and traits of each component is described. Ultimately, each major component is tested to see whether changing its traits would promote the general conditions or not. In this case, the subject under design is divided to components using an analytic method. For instance, we can decompose the pattern of a house to such patterns as the hierarchy of intimacy, sunlight in the interior space, shared spaces in the heart of the building, the entrance system, passing through the rooms, short corridors, stairs, preparation and cooking space, window still, private rooms in proportion to the gender and age of the members and the type of their activities, the master bedroom, bathroom, living rooms, storage, rest room, balcony, porch, roof, elevator, etc.

Each of these sections can also be divided into smaller sections in a list of attributes. We can change each and every one of these attributes or in other words, by finding the fundamental problem of each, we can attempt to find ideas for them and ultimately, consider the sum of them as the final fancy for assessment. The Patterns<sup>1</sup> proposed by Christopher Alexander, years of effort was dedicated to gather which, are in fact this same list of attributes which professor Robert Crawford invented. Using this method to focus on the components under design is efficient but the fixed patterns of Alexander don't help the architects much for two reasons: first, despite much effort on the part of Alexander to recognize all the components of a pattern, e.g. a house, it's impossible that he can exact all the climate, cultural, and behavioral requirements for every region and if he actually does that, the list would be so long that it would pose a problem to execute. Secondly, the architect, as the decision maker, must be able to perceive and design the pattern specific to any space in his/her specific way based on the setting context of the design and the unseen experience of others dictated to him/her would just distract him/her. In other words, contrary to my belief that the fundamental problem is in the subject of the design and based on the setting and the users, Alexander limits the fundamental problem of the design by presenting a series of patterns in the form of some presupposition. If the architect enjoys such a degree of recognition to be able to assess the priority of the components of Alexander's pattern based on the context, the patterns would be useful. For instance, Alexander might consider the pattern of a house composed of 50 components. If the designer limits him/herself to these components, his/her point of view would be restrained to the reality or s/he would develop the components which are not a priority in many regions. Undoubtedly, the type of behavior of a Muslim tied to the climate of Khorasan, Iran, which is very different from the behavior of a Hindu in the climate of the North of India, calls for spaces which won't conform to the predictions of Alexander and only an architect familiar with the culture and climate of these regions can recognize the pattern required for the house of each. In the pattern of the house, Alexander have even considered Zen's Ideas and that means in the scope of his own information, he has attempted to develop the hypothetical pattern. But referring to the better architecture of Aryans, i.e. the Vastu method, we'll find measures different from these advices. That's why this author, though not

<sup>1</sup> It is emphasized that the definition of pattern in Alexander's point of view is different from the mental pattern intended by this author.

putting much stock in the too general and vague insight descriptions regarding architecture, is also rejects the rigid analytical methods and only relies on the determined and yet unpredictable method of chaos to determine the inescapable frameworks of designing along with reinforcement of creative power of the architect to make the right decision in any different circumstances. Except for the general pattern of house present in the mind of all the architect and of course, its components which differ from one country to another, formative describing and developing of a pattern to the details won't help find a new problem and a new spatial design, because chaos aims to create a new pattern based on the conditions of the first stage and the creativity of the architect. It's the architect who must record an accurate list of attributes by being present on the site and consulting the users and form a unique pattern based on it. Referring to a fixed and predetermined pattern cannot ensure you'll find and solve the fundamental problem.

### 13. Forced Relationships

This method is the most important functional method of the creative methods and the main method of discoveries and inventions. In order to borrow from something, we think of the relationship between the two subjects, but if we don't find a clear relation, we can resort to forcing the relationship between the two. Meanwhile, if a hidden relationship was revealed between the two subjects, we have made a discovery and profound notions and innovations are appear in our work which is real. Otherwise, the limitation of innovation and surprise of the design would challenge the perception of the audience because they see something different from the convention and patterns they know in front of them. Here, we have invented and undoubtedly have achieved the new pattern we were looking for. In this case, it is very important that we forge a solid ground or relation acceptable by the mental patterns of the audience between the components so that the design is not rejected by the audience. This method was the common solution of all nations for the creation of myths and mythical creatures. The study which underlies the book before you was initiated by forcing a relation between chaos and architecture and led to the discovery of the hidden relation between the two on a cognitive level and invention of a process of architectural designing based on chaos.

Undoubtedly, one of the strong points of the architects of the past was their mastery over different types of knowledge and arts. In the past, the architects were able to actually form patterns by combining and forcing a relationship between architecture and other fields because of their awareness of other arts such as painting, sculpture, poetry, music, and drama and their knowledge of astronomy, construction, mechanics, archaeology and materials. Since universities have merely focused the mind of the students on architectural works, the power of creativity and usage of other fields of knowledge and art have dramatically declined. Using forced relationships in architectural design is beneficial and even necessary. In his/her every design, the architect needs to mix architecture with usages and notions of the intended place in a novel and integrated way. In every project asking about the creative relationship between architecture and residence, architecture and work, architecture and cinema, architecture and sport, architecture and music, etc. can lead to an invention or discovery. With this method, you can impose a hidden attribute and a notion beyond combination and borrowing on your process of creation and create a new

pattern. The deeper your experience in a field, the more creative your work of architecture inspired by it.

When you look at Azadi (Shahyad) tower in Tehran, you'll find it familiar but there has never been such a thing in the history. In creation of Azadi complex as the symbol of Tehran, none of the ancient architectural elements of this land were repeated in their main relationship and shape, but are put in a new relationship with new and different functions and an unprecedentedly cohesive, yet familiar architecture is embodied. The main symbol was a stone building like the Achaemenid stone buildings which was built by the technology of the day, but in between those hard rocks, you can see grooves of the turquoise blue tiles which represent Islamic buildings in a novel method. The Persian geometry under the arch has appeared in a completely different role than the old buildings that connects the arch of Sassanid Kasra vault meaningfully to the Islamic broken arch. Like the most important Iranian achievement in the field of converting a quadrangle to a circle, Shahyad Tower arises from a quadrangle base on four foot and ends up to a dome in between but in a completely new way. The design under the dome of Sheikh Lotf Allah in Isfahan has also been turned oval through complex and delicate logarithmic relations which existed in the geometry and dimensions of the dome of the mosque back then and has been forced on the expanse of Azadi Square. Inside and beneath the tower, many functions which are not expected from an urban sign are defined in the complex. In this work, the architect of the complex, Hosein Amanat, to embody the national identity, has adopted different components of various architectures of Iran, has forced a relationship on them in the form of a new structure which led to a beautiful, unique, familiar, meaningful, functional and integrated monument.

The masterpieces of creativity through forced relationships on subjects and the unrivaled technology of metalwork of Iranian ancestors appear impossible now:

### 14. Morphological Analysis

This method is executable in different forms including two-dimensional, three-dimensional and more than three dimensional. This method can be used in relation to the ideas, problems, objects or systems whose components are analyzable in order to consider all the various potentials of the design and the possibility of mixing them together. This analysis is done in order to study what each new possible combination of the components would produce. This method helps you to be able to break the design into its various components and extract many options from recombining the components together. The possibility of these combinations being accurate and executable requires review and assessment in the next stage but in this way, you can gain more combinations to examine by increasing the variables of the subject of design.

In the two-dimensional method, the key factors under investigation are put into the column of a table and in front of them, different states are written down. Thus, it would be possible to visualize each of the different states of the components by reading each column. For instance, imagine that you want to categorize the variables for the schematic of a house. We can divide the key factors into three category of deployment in the ground, access, and the general morphology of the design.

Clearly, by using the two-dimensional table, we can only associate the type of deployment to one morphology and one access mode.



To relate all types of deployment to all kinds of access and patterns, we must use the three-dimensional method. The three-dimensional type of this method puts all the variables on the sides of a cube in three dimensions and thus, triples the number of final ideas (with the presupposition that the numbers of variables are equal). In this mode, if the numbers of variables are not the same, we use rectangular cube.

For the morphological analysis of more than three dimensions, after classifying the key factors, circular cards with different diameters connected by an axis at the center are prepared and in the sectors of each circle the code and numbers of each variable is written. Then the circular cards are rotated around the central axis so that different variables are aligned and thus those variables are constantly in new relations with each other. Nowadays, we can get a list of all the possible combinations using computer programming.

### 15. Alternative Finding

It is necessary that surreal fancies which are the result of various mental patterns come closer to the reality in order to be criticized and examined and shared. Formal embodiment of the fancy is called an *alternative*. Each alternative of the formal embodiment is response to a complete round of proposition, reflection and development of a fundamental problem. Each of these stages might also be developed fractally from within by various questions and answers and from each section, cognate alternatives are born in response to a fundamental problem. The fancies underlying the design are floating around in the mind shapelessly which combine all sorts of descriptions, notions, symbols, materials, functions, etc. what lies between the ethereal fancy and the fabric physique of the architecture are those alternatives which embody the fancies.

Chaos considers the whole a system taking life from the dynamism of the transactions of its inherent factors. The parts are born out of the whole and yet shape it too. In any architectural subject, as we mentioned, several patterns and fundamental problems are hidden; since the chaotic system is highly sensitive to the initial conditions and in other words, the key factor of the system are, selecting each fundamental problem, how to develop and deepen it and the combination of different methods of fancy finding can lead to utterly different system. Even while searching for the fundamental problem or the optimal solution, entering ideas and new conditions at any moment creates new fancies. In other words, since the conditions for creating a mental pattern are chaotic and fractal, at any stage of idea making, on different scales, different fundamental questions and mixing fancy finding methods, increase the alternatives radically.

We know that in a chaotic system, trajectories never pass a point twice. When we start to move from a point, after a while, we'll occupy on a point from which if we want to go back to the start and move towards that point again, we might get close to it, but we'll never find it again. This is the natural essence of the system of human brain. After each time of reviewing the initial fancy, due to the chaotic and variable nature of the mind and presence of new ideas and also chaotic state of the environmental conditions, as we mentioned, the change in initial conditions (which are usually inevitable), under the influence of butterfly effect, they'll stir the design towards a completely different direction and even with one basic fancy, the alternatives would be varied. If this is not the case, it would be indicative of a problem and that somewhere the system is trapped and has been rendered linear.

Therefore, we find that basically, the quality of the mind of the designer is its high ability to create several fancies from the most unreasonable to the most executable of designs. In fact, creative cogitation thought is such that would automatically extract several fancies and patterns from itself which would overwhelm the person. Now, you can clearly see what a limited perspective does have those who consider architecture the creation of form and how dogmatic the view of those who create mere form in the name of designing, impose it to the real conditions in any design is. The fancy finding method presented in this book are merely some of the most common methods which the industrial designers, movie makers, and fashion designers and advertisement use most frequently to design new cognate products and which can be useful in architecture. It is much recommended that especially during your academic studies, use these methods to find fancies and solutions. Then after a while, your chaotic brain would automatically build complex synthetic methods for finding fancies more quickly from combining these methods and would be able to quickly discover fundamental problems and create various alternatives in regards to one subject of designing without having to separate these methods. You might also find various personal methods through experience or intuition. In any case, don't forget that architecture is not form, but a dynamic system with you as the life giver to their its mechanism.

Some designers avoid change in their design and even if they consider it a shortcoming of the work, their natural mind would hesitate due to being close to balance. While turning off your pride and activating your self-confidence, don't resist hesitation. Hesitation means the opportunity for doubling and finding new ways. As we stated before, information is in hesitation. The mind of the architect which has a higher level of cognition, hesitates at every stage and attempts to find ideas and create information at every stage and thus, might produce a lot of alternatives for a subject of designing.

Due to an executive requirement, it was necessary that the design be prepared for the place in just three days. Obviously, visiting the location and assessing the situation was the first step. To quickly find the fancy, nothing is more appropriate and responsive than the environmental conditions of the design and the context of this design had much potential for idea making. The first recommendation for this place was to deploy a memorial for Manouchehri Damghani, the capable Iranian poet whose name was put on the adjacent street because at the present time, nothing is more important than preserving the culture and keeping its values alive which the foreigners have their greedy eyes on. When the respective area's municipality rejected the fancy (and of course promised to create a memorial in another part of the street), twelve fancies and six general alternatives were suggested among which, four were chosen to be presented on the third day: the first alternative was from imposition of relationship and different functions on different components familiar from the Achaemenid architecture with remaining loyal to the initial concept, gradual change in the form and materials to define a new architectural element with a new function; the symbol of water in the mouth of the lion of Persepolis is the same cow it is biting on the walls of Persepolis. Key factors of fancy finding in the second alternative was integration of art of the eras after and before Islam in the form of displaying the growth of cypress, Iranian symbol of plant, in the form of a golden volume on the cut branch of the Achaemenid

column which in overall, associated a statue of a lighted candle and the floor of the water front is a borrowing of the Persian geometry plan of a 16-angled shape which was used on the ceiling. The third option which was approved was a maximizing of the silver Sassanid tray with the design of lion hunting by Ardashir II on horseback on top of the minimization of a cliff which symbolized the resistance of Iranians in the *Qal'eh Dokhtar* (The Maiden Castle). The key factors focused on in the fourth alternative were placing of the design near Ferdowsi St. and adjacent to the antique shops. Thus, the design became a carpet woven from steel which told the stories of *Shahnameh* with colorful statues. Other than the main fancies, each alternative could have been segregated into components such as the plan of the water front, different methods of lighting, materials, construction methods, costs, etc. Assigning variables to each of these factors by morphological analysis provided the chance to develop alternatives. In the end, based on the deployment of the design on site, the proportions and sizes were adjusted to the site.

As it can be observed, for fancy finding in this project, without being able to exactly separate different methods of creativity, all the mentioned methods were more or less used. In this method of design, although it justifies the subject of creating form, does not put priority on the creation of a volumetric figurative combination. Rather, the creation of a targeted and meaningful work which can trigger cogitation universally and promote the cognitive-perceptual level of the urban audiences relating to the cultural context. In this method of design, although the subject justifies focusing on form, but the designer does not put priority on the creation of a volumetric figurative combination. Rather, the creation of a targeted and meaningful work which can trigger people's cogitation and promote the cognitive-perceptual level of the urban audiences relating to the cultural context was considered.

## 16. Conclusions, Perspectives, Strategies, Useful Suggestions and Future Studies

Although the mental pattern of the architect of the space is not limited to the visual pattern, a major part of this pattern must be conveyed to the others and the executive authorities in the form of an alternative. The architects attempt to record the fancies for formal embodiment, reexamination, finding alternatives, optimization, and sharing in their own way and express it through modeling, computer or hand-made drawings or merely notes. In general, this abstract form of the mental pattern can be called the *conceptual diagram* or more accurately, a diagram of the fancy in reference to the common terminology. It is important to state this point that although the definition of fancy is not the same as concept which is proposed directly to create form independent of the subject of the design, but it is accepted that both of them involve notions which ultimately are used to convert architecture to a form used form for converting to architecture. In order to encourage a common language among the architects, it appears rational to consider the diagram of the fancy and the diagram of the concept the same despite their true nature. Although fancy is not accurately describable by a diagram. During the next stages, this point would be further clarified that spatial mental pattern can never be conveyed through diagrams, forms and maps completely and the architect is forced to guide and control the design to its execution directly to make sure what s/he had in mind is actually being realized. All the architects have found through experience that they can never rely on maps and volumes of the design with details in

order for it to be properly executed. This is in itself proof of the fact that architectural mental pattern is not limited to form.

Attention to the difference between the terms fancy, alternative and conceptual diagram is very important for separation of the process from thought to the designing. As to transfer a thought, speech takes place by means of language, to express fancy; alternatives are proposed by means of the language of diagram. To better convey the fancy, this language should be shared and expressive. In judging the works, it is also important to recognize the difference between these three factors and not be influenced by appearance and flippancy of computer diagrams of the quality of the alternative and impressed by enticing remarks and alternatives and forget to test the accuracy of thought and fancy.

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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.