

NARRATIVE ARCHITECTURAL FICTION IN MENTALLY BUILT ENVIRONMENTS

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Abstract. A thin line lies between reality and fiction; what is mentally imagined and what is visualized. It all depends on how ideas and images are perceived or what neurological activity is triggered in the user's brain. Architects and designers spare no effort or tools in presenting buildings, architecture or designs in all forms or ways that would augment users' experience whether on the perceptual or the cognitive level and in both the digital or the physical environments. In a progressive tendency they, the designers, tend to rely more and more on digitizing their vision and mission, which subsequently give them, impressive and expressive superiority, that would influence the users conscious on the one hand and manipulate their subconscious on the other. Within that process designers work hard to break any mental firewall that would prevent their ideas from pervading the space of any mental environment the user, build or visualize. In that context, to what extent such ways of mental entertainments used by architects, legitimize deception in design? What distinguishes employing the rhythmic simulation of the narrative fictional inceptions (virtual reality) from deploying the adaptive stimulation of the experience modeling conceptions. The difference between planting an idea and constructing an idea. It is not the intention of the paper to prove the failure of the computer aided design neither to stand against the digital architectural design media and applications development. It is rather to present a different way of understanding of how architectural design whether virtual, digital, or real can stimulates and induces codes and messages that is correlated to the brainwave cognitive attributes and can generate a narrative brain environment where the brain can construct and simulate its own fictional design. Doing so, the paper will review certain experimental architectural events and activities which integrate sound and sight elements and effects within some electronic, technical and digital environments.

Keywords: cognition, subconscious, fiction, fictional narrative, narrative, science fiction, inception, conception, architecture for brain.

1. Introduction

Rapid technological and digital developments have directly affected people's ideas, notions and cognitive psychology. Designers including film making directors benefited widely and extraordinarily from that development in fictionalizing reality or realizing fictions.¹ Their ideas formulation occurs concurrently within the brain's conscious or subconscious cognition, which in turn entices a novel architectural conception that stimulates mental spatial thoughts at the deepest parts of the brain. Also, it proposes how narrative fictions could provoke an idea seed that can be incepted conceptually in the human's minds. This virtual seed grows into a thought, vision, behaviour, or information and defines the human's cognitive psychology, subsequently his mental environment. This cognition happens in the two simultaneous parts of mind, the conscious and the subconscious.²

In the mental Environment, the conscious is the surface of the thinking mind. It acts as the objective mind and deals with the outward objects, and gains knowledge through the five physical senses. It is responsible for logic and reasoning and is affected by filters that any preponderant thoughts have created and stored in the second part. The subconscious is the inner space of the mind and acts as the deep self and the subjective mind. It deals with feelings, emotions, memories and inward intuitions. (Murphy & McMahan, 2000).

Therefore, this research investigates a novel architectural direction that stimulates and simulates thoughts on the outer and the deepest parts of the brain. (Al-Aqtum *et al*, 2016) It enhances a subtle human's cognition to the built environment which acts as fictional narrative, metaphors, characters and series of events.

The research addresses the link between the idea and the fiction and the difference between science fiction and fiction science. The fiction is generated by specific narrative starting with gaining information and ideas from people's subconscious which is the needed state for Inception. It is defined by Christopher Nolan in his movie "Inception", 2010, as planting an idea into someone's subconscious mind. This process couldn't happen unless the conscious defences are lowered according to him. (Irwin, 2011)

It is found, that the novel direction could be named as "Architecture for Brain" meant to enhance the main role of the human's subconscious in understanding the built environment. So, architecture should pay more

¹ Two of the most successful movies, The matrix (the series) and Avatar have stress in creating mentally built environment while the first fictionalizes reality, the second realizes the fiction.

² The matrix goes to the subconscious while Avatar refers to the conscious.

attention to the fictional narrative rather than the reality! Also, it should stimulate thoughts rather than human senses to promote brain cognition.

2. Architecture and the philosophy of mind

Architecture in the philosophy of mind is no longer concerned merely with designing appealing containers for people and things. It is a combination of perceptual intelligent brain modelling techniques and sensing technology. Architectural spaces are now endowed with the ability to sense, respond and adapt to the way people experience, interact with and use them. Mind in Architecture, Architecture, Neuroscience and the Human Mind and many other publications and researches have with no doubts prove the inter-relationship between architecture, neuroscience and the environment.

Anyhow it's being argued which of the three have the greater effect on the others or what is the inter-correlation or equation that relate them together.

Whether that relation discussed in Rasmussen classic book *Experiencing Architecture*, as he stresses the visual quality produced and processed in architecture, (Rasmussen, 1964) or in *Sensing Architecture* of Lehman as she stress the effect of the visual psychology of experiencing architecture.(Lehman, 2009). "As was determined, a lower ceiling within a room promotes greater attention to detail by occupants. Higher ceilings promoted greater abstract and creative thinking by occupants" (Anthes, 2009).The architecture which surrounds you influences your thought, and subsequently your behavior (Lehman, 2009). Whether sensing architecture or experiencing architecture both emphasis the brain conscious interpretations of the architecture or environment. Yet not all mind processes processed in conscious states. The law of mind explains that any reaction or response from the subconscious mind is according to the nature of thoughts or ideas that set in the conscious mind (Murphy and McMahan, 2000). Understanding the relationship between the environment and the mind is important as to understand where, how and when that particular relation turned into vision, process or structure. "All in all, architecture is a type of "food for thought" where your designed surroundings impact not only how you perceive that world, but also how you interact within it." (Lehman, 2009). In *Scientific American Mind's* most recent issue, an article by Emily Athens called "Building Around the Mind" highlights various architectural factors that influence the human mind.

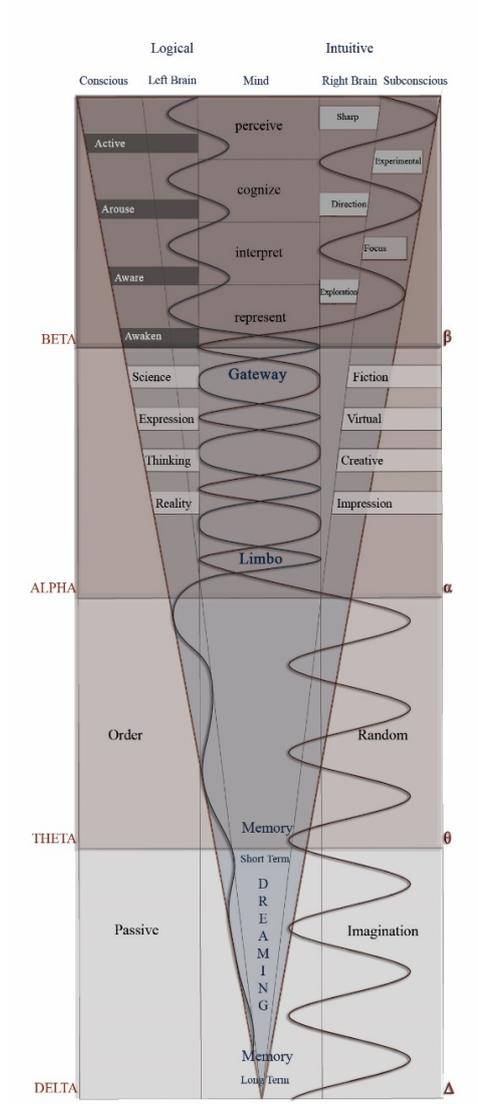


Figure 1 Brain Architecture Iceberg (Source: The Authors, 2016)

As described in the article — through the brain, architecture can impact our creativity, focus, health, attention, mood and social ability (Emily Anthes, 2009). “Of course, this is just the tip of the iceberg ... Architecture plays a major role for our brains, not just as we perceive space; but also as we engage in interactions, behaviors and thoughts” (Lehman, 2009). Most of the studies discuss how architecture influences the human mind, while few tackle how the brain perceive, cognize, interpret and represent or process the in-taking ideas and concepts, and if did they refer to it either in the sensual psychology or the experimental behavior. Fortunately, enough new media, science fiction, virtual reality and movies move to the other side of the brain-architecture equation and while defying the law of physics and gravity they invaded the brain realities and created what we may call the generic mind, a mind that is not contained into a specific time or space, a mind that creates its own architecture and generates intuitive space out of the logical place, see Figure 1.

2. Intuitive and Logical Brain Environments

Changing a ceiling height from low to high, changes the users state of mind from the concentrated giving detailed attention mind, to an abstract greater thinking creative mind. So seeking architecture that stimulates change in the mental state of the space user, from the Beta (β) interactive wave to the Alpha (α) responsive wave, simply triggered only by moving the upper side of his/her perceptual cube (Anthes, 2009). In turn that change induced change in his/her spatial cognitive vision, which either match or stimulate, (a or the) mental environment that the user either visualized or constructed, See Figure 2.

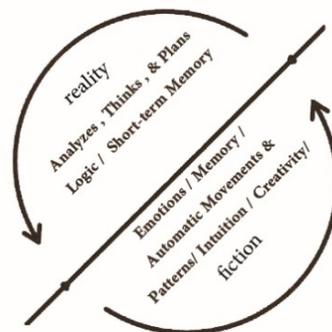


Figure2 the architecture experience (Source: the authors, 2016)

What are the possibilities, and of which environment, space, image, mental or the mind state that would induce, match or change the other environment? What is the case or the state needed for each environment in itself or the other, to interact, to respond or to influence? So what all designers need, is understand the philosophy of mind scientifically. Also to understand the mind cognition of the space morphology and the design procedures of the different Phenomenological perceptual experiences. Phenomenological concept strategies in architectural design intend to develop a unique experience of the phenomena of space, light and form. (Theory and context, 2016) simply to understand Architects need to design architecture that pass below the normal limit of perception, architecture that brings virtual to the real, and move the user mind from the science fiction to the abstract illusion. S Designing a mentally built environment and bringing what is mentally constructed into what is architecturally visualized needs this philosophy of mind to be supported by bringing neuroscience to the experience of the users and the designers.

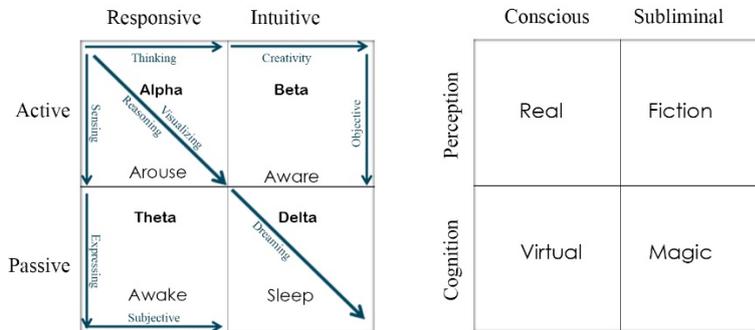


Figure 3 Brain and architecture in the JoHari chart (Source: The authors, 2016)

As if changing one side of the user perceptual cube, the upper side, changed his or her mental state-wave from the β to the Ω or vice versa, whether changing any other side or the whole sides would move the mind states to the Theta θ or the Delta Δ state. Or training the minds to change its mental state from one case to another by means of digital or electronic simulations would stimulate a mental environment which may substitute real architecture.

Another scenario of brain development goes to an ancient-contemporary training courses done under the ABCUS³ and the ACMAS⁴ programs. Both programs use the visual arithmetic system in employing the concept of brainpower shift between the Intuitive-Spatial right side and the Logical-Analytical left side or vice-versa. While ABCUS depend on user's perception of the real bar-rod-beads ancient tool to do any arithmetic calculations, ACMAS deploy user's visualized cognition of ABCUS in their brain virtual-spatial environments to do those operations. ACMAS brain inclusive operations owe its superiority over ABCUS for it claims all brain potentials, properties and activities at a timeless space-less mental environment. Beside its superiority in all brain activities ACMAS added the voiced value in transforming sound into visual narrative environment that is turning vocabularies into figures and images. The program, beside developing one's brain spatial environments is also distinguished with its ability to improve one's concentration, short and long term memory, intuitive and logical thinking, analytical and synthesizing pattern, real and virtual conception, subjective and objective reasoning. See Figure 3 (Naja, 2012).

³ ABCUS an ancient calculating tool.

⁴ ACMAS Mental Arithmetic System is an international concept of brain development program that originated in Japan

4. Architecture and Neuroscience

According to Gordon Chong, “neuroscience is beginning to provide architects with an understanding of how the brain ultimately affects how we think, move, perceive, learn and remember. (Eberhard, 2009).

Building around the mind, *Brain landscape: The coexistence of neuroscience and architecture*, and many other publications aimed to open a dialogue between architects and neuroscientists in order to understand how our brains and minds are interacting with the architectural setting and to invite the neuroscience community to devote a portion of their research agenda to architectural hypotheses (Eberhard, 2009).

“Neuroscience is the study of the brain; neuroscientists believe that the brain is the organ that controls behavior. The brain is a complex organ, composed of areas that control vision, somatic sensory experiences, and motor outputs, as well as areas that help us navigate through novel environments”. (Gage, 2003)

According to the neuroscience “the human brain is a network of approximately one hundred billion neurons, different experiences create different neural connections which bring about different emotions. And depending on which neurons get stimulated, certain connections become stronger. The connections between neurons can be increased or decreased based on the changes in experience and physical interaction with the environment” († wake up ‡, 2014).

“Each neuron has a voltage which can change when ions flow in or out of the cell, once a neuron’s voltage has reached a certain level, it will fire an electrical signal to other cells, which will repeat the process. When many neurons fire at the same time, we can measure these changes in the form of wave. Brainwaves underpin almost everything going in our minds, including memory, attention and even intelligence. As they oscillate different frequencies, they get classified in bands. Each are associated with different tasks” († Wake up ‡, 2014).

The role architecture plays is to stimulate human brainwave and projecting the architectural spatial design on these brainwave bands to create a mentally built environment that simulates the brainwave activities through the brainwave entrainment process.

The combination of the philosophy of mind with the neuroscience could establish a framework for the designers by transforming these brainwave bands into layers, each Layer has its own pattern according to its metaphor that is relating to the equation of WAVES, where the frequency of “brainwaves” changes from one layer to another. See Figure 1

Events and activities are classified according to these layers’ patterns and these bands of the brainwaves express the stages that user pass through the

built environment which acts not only as setting but also as fictional narrative, metaphors, characters and series of fictional events. See Figure 2

5. The invisible augmented architecture

“Phenomenology demonstrated in architecture is the manipulation of space, material, and light and shadow to create a memorable encounter through an impact on the human senses. This theory promotes the integration of sensory perception as a function of a built form. This creates an experience that is beyond tangible, but rather abstract, observed and perceived (Theory and context, 2016). “In his engaging essays, *The Five Senses*, Gonzalez-Crussi (1989) reminded us that Aristotle first noted that sight and hearing were what distinguished humans from the animals because it was these two senses, he argued, that allowed the unique human ability of aesthetic appreciation—of art and music—a quality that animals and robots lack.” (Baldwin, 2012)

Accordingly, the key to augment the user experience and tackle the human thought, it's to create an architectural narrative focusing on the rhythmic architectural elements (the sight and sound) that's used in the brainwave entrainment which is” a principle of physics”, and defined as the synchronization of two or more rhythmic cycles, and stimulate the human brainwave activities (Corporation, 2016), and it should focus in the most important rhythmic architectural elements (the sight and sound).

Such narrative architectural fiction is used to augment the user's experience in the limbo state, through the invisible architectural elements, the light and sound, which are the characters of this architectural narrative. (Al-Aqtum *et al*, 2016)

In the limbo, the manipulation of light and sound are the distractor of people's attention, where people suspend their judgment in constructing the environment. See Figure 4. These experiences focusing on the spatial auditory cognition through the sound manipulation with people's emotions, See Figure 5. As application systems, the design proposes using laser beams and sound manipulation systems to affect people's subconscious minds by changing their state of consciousness and brainwaves.(Al-Aqtum *et al*, 2016)

The Limbo is an implementation of the “Suspension of Disbelief Theory”. This theory defined the term Suspension of Disbelief as the willingness to suspend one's critical faculties and believe the unbelievable; sacrifice of realism and logic for the sake of enjoyment (Wikipedia, 2016). So, augmented architectural elements (light and sound) could provoke people's thoughts to believe of a wider space because of perspective illusions, See Figure 6.



Figure 4 The Limbo Experience (source : Al-Aqtum et al, 2016)



Figure 5 The Spatial auditory experience in the Limbo (source : Al-Aqtum et al, 2016)

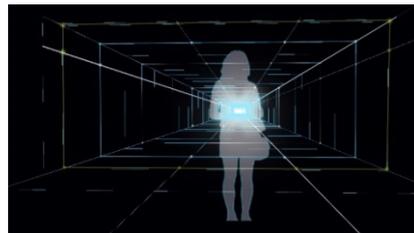


Figure 5 Invisible Augmented architecture (Source: Al-Aqtum et al, 2016)

6. Conclusion

Architecture plays an important role not only in providing a sensory built environment that stimulate human senses but also expanding and generating users spatial brain environment. Further it's rather providing spatial subliminal cues that stimulate the brain thoughts through a spatial cognitive design that simulates the mind's interpretation to the mentally built environment. Between the brain interpretation of the real environments or stimulated by it, architecture for brain is that which entice thoughts not senses; It is not that generate or change brainwaves but rather match and correspond with it; It should focus on the most important rhythmic architectural elements (sight and sound); It deploy user's experimental perception of the real environments in developing users virtual brain

environments; It is an inclusive brain operation that owe its superiority for the phenomenology of architecture; It claims and utilize all brain potentials, properties and activities at a timeless and space-less mental environment; It is the philosophical investigation and description of conscious experience in all its varieties without reference to whether what is experienced is objectively real; Architecture that generates different circumstances in different types of mind wave-state and different situations of illusions, fictions and virtual; It moves effectively in-between the brain parts, states, waves, conscious and subconscious.

Architect should employ and deploy the narrative architectural fiction where important architectural elements such sight and sound are the characters, metaphors of the events and activities that enhances the subtle human's perception and cognition of the built environment.

References

- AL-AQTUM T., EL RYALAT M., AERMAN F. (2016). The Neuro-Subjective Totem, Unpublished, graduation project thesis and design. The University of Jordan. 2015/2016
- ANTHES. E., (2009). Building around the mind. [ONLINE] Available at: <http://www.nature.com/scientificamericanmind/journal/v20/n2/full/scientificamericanmind0409-52.html>. [Accessed 1 August 2016].
- BALDWIN, C.L., (2012). Auditory Cognition and human performance: Research and applications. London: Routledge.
- CORPORATION, T. (2016). Brainwave Entrainment - A scientific overview of Neuro-Programmer 3. Available at: <https://www.transparentcorp.com/products/np/entrainment.php> (Accessed: August, 2016).
- EBERHARD, J.P., (2009). Brain landscape: The coexistence of neuroscience and architecture. Oxford: Oxford University Press.
- GAGE, F.H., (2004). 2004-02-01-Fred-Gage-Lecture-AIA-03-compressed.pdf. [ONLINE] Available at: <http://www.anfarch.org/wp-content/uploads/2013/11/2004-02-01-Fred-Gage-Lecture-AIA-03-compressed.pdf>. [Accessed 2 August 2016].
- HOFMANN, E. VON, (2014). The Brain on Architecture Nov. 10, 2014 <http://www.theatlantic.com/health/archive/2014/11/the-brain-on-architecture/382090/> [Accessed August 2016]
- IRWIN, W., (2011). Inception and philosophy: Because it's never just a dream (the Blackwell philosophy and pop culture series). Edited by David Kyle Johnson. United States: Wiley, John & Sons.
- LEHMAN. M. L (2016). Your Brain: How Architecture is "Food for Thought" - Sensing Architecture ® |. [ONLINE] Available at:<http://sensingarchitecture.com/927/how-brain-why-architecture-is-food-for-thought/>.
- MEDIA REFERENCING, (2016). The Matrix (1999), The Matrix Reloaded (2003), The Matrix Revolutions (2003). The Animatrix (2003), Avatar (2009), Inception (2010).
- MACGILL, V., (2016), Is the Mind outside the brain? In Chaos and Complexity Magic and Mystery, <http://www.vmacgill.net/mind.html>, [Accessed August 2016].
- MURPHY, J. AND MCMAHAN, I., (2000). The power of your subconscious mind. New York: Pocket Books.

- NAJA, S.F., (2012). X-Talent; center sheft your brain, Unpublished, Graduation project thesis, Petra University, Fall (2012/2013)
- ROBINSON, S.E., (2012) Architecture, neuroscience and the human mind: architect in focus, in Finnish Architecture, <http://www.finnisharchitecture.fi/2015/12/architecture-neuroscience-and-the-human-mind-architect-sarah-robinson-in-focus/> [Accessed August 2016].
- RASMUSSEN, S.E., (1964). Experiencing Architecture. 2nd Edition. The MIT Press.
- THEORY AND CONTEXT, (2016). Theory of Phenomenology: Analyzing substance, application, and influence arch 630: Available at: <https://cte.ku.edu/sites/cte.drupal.ku.edu/files/docs/portfolios/kraus/essay2.pdf>. [Accessed: August 2016].
- WIKIPEDIA (2016). Suspension of disbelief - Wikipedia, the free encyclopedia. [ONLINE] Available at: https://en.m.wikipedia.org/wiki/Suspension_of_disbelief. [Accessed: August 2016].
- † WAKE UP ‡ (2014) Become self-aware 'human brain and quantum physics' (HD). Available at: https://www.youtube.com/watch?v=bPx_Vvjpw9Y [Accessed: August 2016].

