How Creativity Manipulates Nature and Space to Produce Architecture

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***Abstract*:** Architecture has always been meant to solve problems by satisfying the end-user emotionally, psychologically or physiologically. This is why architecture is seen as a product of a way of thinking and creativity which requires manipulation of space and nature as source of inspiration and tools to relate with in order to solve problems.
This paper examines architecture as a product of creativity through the manipulation of space and nature. It further explains the importance of space and natural elements as source of inspiration and interaction for architecture. Methodology of study is qualitative approach using the data collection techniques of archival documents, observation, and typological analysis of buildings / works of some renowned architects as well as content analysis of selected literatures on the subject matter. Findings reveals that architecture built on effective manipulated space and nature inspired structures affect the total wellbeing of humans, people's perception of the built environment and the beauty to behold and iconic. The study also reveals that creativity is an important asset in the practice of architecture.

Key Words: Architecture, creativity, nature and space

Introduction

Architects in solving client's problem during pre-design and design stages conceptualize, process evaluate and manipulate spaces through some techniques of creativity using sketches , line drawings, scale and shapes. The conceptual geometric shapes thus produced become space made of surface and openings referred to interior space. Throughout history, Architects have looked to nature for inspiration for building forms and approaches to aesthetics stimulation. They design and incorporate these natural elements in their traditional ornaments, copy

nature through artistic interpretation that makes it similar to the copied natural objects (Paullyn, 2011).

It should be stated clearly here that no piece of architecture can be isolated, hence for architecture to thrive, it must relate well with nature and environment, space has to be manipulated through mental cohesion of ideas (creativity).people's perception of any architectural product is influenced by the outcome of the individual space so manipulated and the touch of nature and its organisms.

Creativity

Creativity means so many things to so many people but its meaning revolves around innovation; generation of new ideas; solution to problems; repackaging of old ideas to evolve new ones etc. according to Boden (1998), "creativity involves the generation of new ideas or the combination of known elements into something new, providing valuable solution to a problem". The main objective of creativity is to think beyond existing boundaries, to awake curiosity to break awake from rational, conventional ideas (Candy, Schalange and Juttner 1997) and formalized procedures to rely on the imagination, the divergent, the random and to consider multiple solutions and alternatives (Candy, etal, 1997). It should be noted that no one is born creative; creativity can be learned, practiced and developed by the use of some techniques which helps to enhance and stimulate creative abilities.

Nature and Architecture

Nature with its abundant elements has been known to stimulate and inspire architects and works of architecture from time immemorial. The basic ideas of marrying architecture with its environment (biotic elements) or nature is as old as the profession of architecture itself. "Today; there seems to be a renewed interest in the relationship between nature and architecture especially zoomorphic or biomorphic architecture". (Feuerstein 2002). Also, biomimicry, where flora fauna or entire ecosystems are emulated as a basis for design is a growing area of research in architecture. The subject of biomimicry allows designers to emulate natural forms in their design using 'nature' as their source and inspiration; it emphasizes the translation of adaption in biology into architectural solutions" (Zari, 2007). Three levels of biomimicry have been identified namely the organism (plants and animals), behaviour and ecosystem. Designs may be in five forms biomimetrically in terms of 'forms' (what it looks like); material (how it is made); process (how it works and function (what it can do) (Zari, 2007). The integration of some natural features and structural landscape into architecture of the built environment is most beneficial and valuable to human comfort.

Accordingly, (Oniian and Heerwagen, 1992) stressed that "an evolutionary-ecological approach to aesthetics suggests that the incorporation of trees forms, actual or symbolic into the built environment should have a strong positive impact on people. We predict that the presence of these symbolic trees is associated with positive response to the built environment".

Space and Architecture

Space and architecture are two inseparable elements in the quest to solve the human problem of shelter in the built environment. Architecture is to space what a man is to woman if procreating must take place hence every architecture necessarily manipulate space to give birth to shelter. Space is manipulated using continuous, free, angular and unexpected configurations or through subtle changes of light, dark, open, closed intermediate space to change human perception and move people. Every society produces its own space according to its mode of production (general) and social formation (specific) and the contradictions thus engendered. "space be lived, conceived or perceived which constitute a coherent whole in favorable circumstances to produce what is known as 'abstract space' (Lefebvre, 2008) Two distinct notions regarding the architecture of space are exists, first, is the architecture as every space transformed by human work (lived dimension of space production) and second, is architecture as a professional and academic field (specialized in conceived products). These spaces especially the space transformed by human work (lived dimension of space products). These spaces especially the space transformed by human work concerns everyone as the environment in which we live is positively or negatively affected. In his appraisal of the architecture of Tadao Ando, (Hien, 1998) observed that Ando used and structural elements together with nature, while decorative elements and colours are intentionally escaped in order to magnify the potentiality of geometry and space. In his building we repeatedly meet the long and narrow passage, the gate, and the flight of stairs, and the descending and sunken walls which help to produce his complex space". However, the most basic attributes of manipulated 'space' is its shape and size which affects people's perception especially as it affects the size of the individual spaces, the relative configuration of the spaces to each other and the qualities and attributes of the space.

Research Methodology

The methodology of research employed here is the qualitative approach using the data collection techniques of archival documents, observations, typological analysis of some buildings/ works of some renowned architects and content analysis of relevant literatures.

Certain cases of three selected iconic buildings of some renowned represent, the unique attributes they posses, as buildings with nature as well as their interaction/ perception with humans in terms of space and special manipulation in size shapes and aesthetics.

Discussions

Selected Architectural Works of Creativity Based on Nature and Space Manipulation.

1. **The Falling Water:** This is the name of a very special (iconic) house that is built over a waterfall. It was designed by America's most famous architect Frank Lloyd Wright for his client the Kaufmann family. It was built between 1936 and 1939. The falling water became instantly famous and a national historic landmark. The uniqueness of the falling water is that it stretches out over a 30ft water fall, being surrounded by trees with water swirling underneath it; and architects are selected and analyzed based on the aspect of life they huge boulders resting at the feet: architect Frank L, Wright designed falling water to be in harmony with nature. Four major materials to build falling water namely sandstone, reinforced concrete, steel and glass. And all the stones of falling waters were quarried about 500 feet west of the water falls. Workers put up the stones in a rough, shifting manner so it would look like rocks coming from the ground. Wright used a lot of clear glass to alloy the exterior to flow freely into the interior. At certain time of the day, the glass becomes very reflective and reminds some people of the mirror-like surface of a calm pool of water. At night the glass seems to disappear. Steel is seen throughout the house in railings shelves, windows and doors, falling waters is indeed nature/ inspired building.

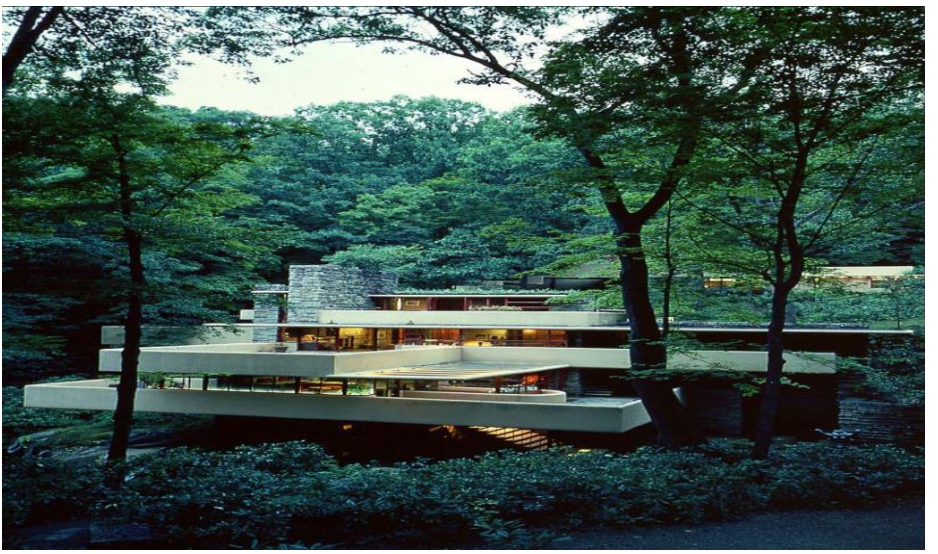

Fig 1: The Falling Water

2. Guggenheim Museum: This is another iconic building designed by a famous architect Frank Gehry in 1997 in Bilbao Spain. It is an example of a building in harmony with nature and space manipulation. Unique is its geometrical shape of Guggenheim museum with eye-catching curvilinear movement had been laid horizontally next to the river of Bilbao has obliged the mass density of the environment. Frank Gehry has created the remarkable shape of the mass with a high level of quality and aesthetics to generate the new identity. Materials include lime stone-coated orthogonal shapes; titanium cladding and soaring glass to atrium are the dominant issues of the bag. Structural element defines the space and conduct the organization and relations of them. Almost all the spaces in the Guggenheim museum have been classified to create the space extraordinary with a special emotive impact for humans. Different structural elements, technology, materials and even the colors are employed to express the new identity of space. Both conceptual and physical spaces have been generated in this building. The use of the soaring glass façade creates a link between the humans inside and outside. The design and manipulation of the unusual space place a structural element and materials to innovate and represent new understanding of space and aesthetics in architecture.

FIG. 2a: Guggenheim Museum facade

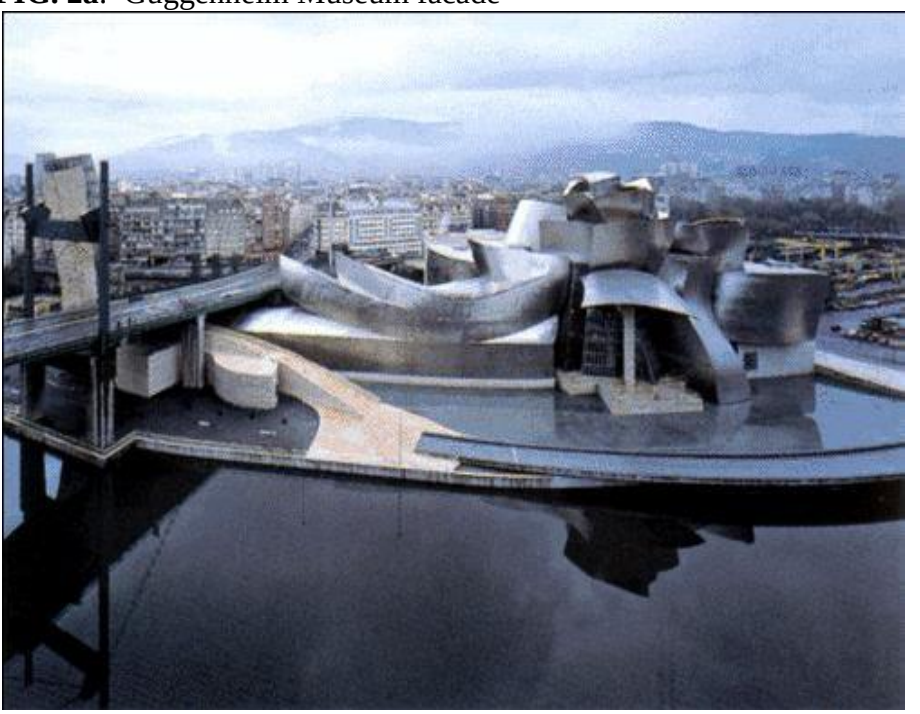

Fig. 2b: Guggenheim Museum wraps around a bridge (Horsley 2002)

3. Nemo Science Centre: This is an immense green building design by a renowned Italian architect Renzo Piano in the year 1997. It is located about 15minutes walk from Amsterdam Central Station. This

fascinating construction is often compared to a ship and situated above the I J Tunnel. Visiting the NEMO building is an exciting journey of discovery through the wonderful world of architecture. The tunnel acts as the foundation with its curve also becoming the curve of the building. At the point that the tunnel descends, the building seems to rise up. A building that appears to be rising out of water also demand the curved form of a bow and in their turn, these curve forms demand a covering that is flexible and malleable. The building has a roof terrace from which the surroundings could be viewed and admire nature. Piano named the interior of the building a "noble factory" with neutral grey walls and visible wiring and piping. The staircase has been placed in a way as to enhance optimum orientation thus focusing ones attention on the manipulated spaces of the internal functions of the building, a place full of discoveries and experiments. While inside you forget that you are in a 'ship' and completely unaware that under your feet thousands of vehicles enters and leaves the city daily. The NEMO building satisfies both nature/environment-induced and space manipulated designs.

Fig.3: Nemo Science Centre, Amsterdam

Findings

The three buildings discussed above have demonstrated the relationship that exist between architecture and the natural environment as well as the generation and manipulation of space to produce architecture that 'speaks'. These building not only made headline news in terms of just popularizing the designers or its

composition and aesthetic they have become buildings 'natural and spaces' whose architecture has changed the perception and the natural and contemporary context, through the power of creativity into extra-ordinary dear to try functional space manipulated and (nature friendly buildings that cannot be forgotten in a hurry as far as architecture is concerned.

Conclusion

Architecture is closely tied to the historic development of the representational techniques of space. And people's perception of any built environment and the buildings therein must be largely influenced by the presence of nature-buildings.

The quality of human lives comes in large part from contact with nature and processes and buildings that evolve from our ultimate contact with nature. We have seen an object of study in which architecture and nature are related and were the relationship between parameters of the site, shape, size and configuration of the spaces and its function is accurate and effective in fact space was constantly changing in its relationship to nature.

In environmental nature, architecture just analyzed we realized that if buildings is enacted by a beautiful landscape architecture can serve as a frame for the nature, the forest or the dominant element and if the building is surrounded by the disorder of the contemporary settlement areas, architecture becomes a should closed to the exterior. It is important to state that architecture alone cannot create a favorable or pleasing built environment nor will any architecture produce effectively without creativity.

Recommendations

Architectures must learn to be biometrically oriented that is using nature/ natural elements as bases for their design while creativity so learned or developed must be put to practice. Finally, Architects must dare to try and break out from the circle of just line architecture. As creature of God and co-creator we must believe too that all things are possible in architecture of the build environment.

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