

Use of Abstraction in Architectural Design Process (in First Year Design Studio)

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Abstract

Design process is thinking process and the process adopted must generate creative thinking. Creative thinking involves visualization which is an ability and skill to convert vision in to visuals. Element of creativity can be nurtured if creative stimulus is introduced and the technique of problem solving is explained. Design process requires many skills. Perhaps the most important is the ability to sketch and annotate a conceptual design. The abstraction is a technique adopted by artists from historical times to bring out the aesthetics of the subject. Abstraction is the process of taking away or removing characteristics from something in order to reduce it to a set of essential characteristics.

This paper presents use of creative technique: Abstraction in design process for form generation in first year design studio.

Keywords: Art, Aesthetics, Creative technique, abstraction, Design,

Introduction

There is no doubt that all tangible visual arts share the same principles and elements of design.

The world we live in is full of artifacts to make these artifacts they must first be designed. Creative design held in great esteem, one should have in-depth knowledge about design cognition and the cognitive abilities and strategies that contribute to creative design thinking. (Encyclopedia of creativity)

“Design is an Expression of Feeling.....Any Creative Act is Design”. (Emerson-1953)

“Design process is a thinking process and the process adopted must generate creative thinking. Creative thinking involves visualization which is the skill and ability to convert vision into visuals. The element of creativity can be nurtured if creative stimulus is introduced and the technique of problem solving is explained”. (MASA 2010)

In architectural design studio, Design process is the most important than a final product so process should be well equipped to help student to arrive at a positive result which will fulfill all the criteria of aesthetic, functional and social parameters.

Design Process should be inculcated from the beginning of first year. In first year, they get introduced to a subject called

design where they learn about element and principles of design, creative techniques.

In first year they learn to design a space. Their primary concern is to create three dimensional structures of space and form to accommodate human activity.

After introducing elements and principles, Creative Technique of Abstraction is introduced to First year student.

Why Abstraction: Mans relationship of art and architecture has always been through nature, starting with the cave man and progressing throughout the history of mankind. Abstraction process gives a way to see nature and how to extract beauty for art and architecture. The process is based on spirit of nature and how to interpret the shapes of flowers, trees, rivers, mountains or any natural thing for design inspiration.

Art is an abstraction.

Architecture is an art.

Architecture is an abstraction.

Architecture is an abstraction of nature. (Milton Stricker-2010)

The purpose of abstraction is to simplify nature, to extract primary logic for design expression. Through abstraction, the complex power of natural phenomenon can be stripped down, simplified studied and shifted into dynamic design possibilities. The artist first distinguishes phenomena, or the appearance of things, and then through intuition recognizes design ideas. By a method of seeing, visualizing, sketching, and abstracting, the process continues, in a series of stages, to extract a basic “design element.” The continuance of the abstraction stages lead to two basic design directions.

- The first design direction leads to an abstracted design element for two-dimensional design.
- The second design direction extends the abstraction process to a higher level for architecture and three-dimensional design.

These two design possibilities start from nature, but each stage in the process leaves nature further off; just as a body might die, the spirit lives on. In the design process, the more repetitions, the further one gets from nature. In the end, there is not much left of nature, but what is left is the spirit, the very source. The power of abstraction proceeds from the spirit of nature, to the creativity of the human mind, and finally to an art form.

Abstraction receives its power through suggestive ideas triggering our imagination, leading to inspiration, which occurs during the abstraction process. To some, this is brainstorming, and it includes imagination, intuition, and inspiration, each having its own place in the abstraction process. Inspiration gives organic design its psychological and artistic power. The suggestive power of imagination can

be positive or negative. It is one of the most powerful forces in the world, producing myths, religions, art, architecture, peace, cold wars, hot wars, and oil wars. The value of abstraction lies in its ability to evoke creative ideas, to inspire open-minded thinking and to stimulate the imagination, generating creative energy. Imagination enables the designer to arrive at endless design concepts, which are unpredictable, individual, and creative, leading to original art structure. Milton Stricker in his book "Design through Abstraction" explains it through the loop of imagination, applied to mountains as source object:

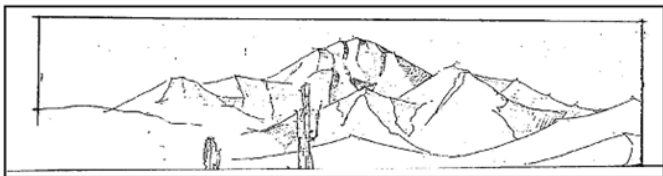


Figure 1: Mountains suggest lines- Mt. McDowell (source: Design through Abstraction)

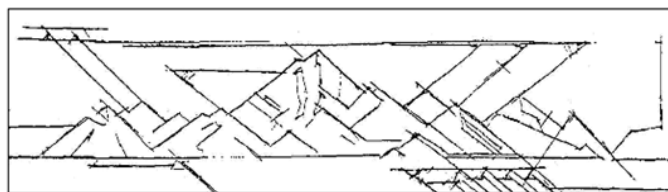


Figure 2: Line suggesting shapes (source: Design through Abstraction)

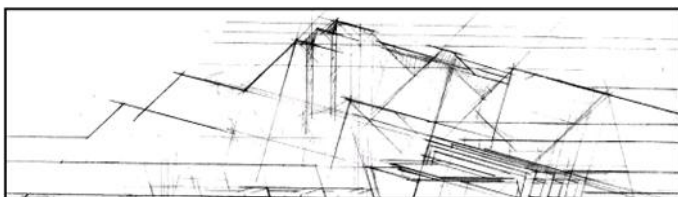


Figure 3: Shapes suggest architecture (source: Design through Abstraction)



Figure 4: Architecture suggests mountains – Taliesin west photograph (source: Design through Abstraction)



Figure 5: Art suggests mountains (source: Design through Abstraction)

The shapes suggested by Mt. McDowell are transformed by forward morphing into architecture and art form. All the while, the mind is preoccupied with the spirit of the mountains and the spirit of the architecture

During the abstraction process, the designer selects a natural element as a modular building block for art structure. The selected element becomes inspiration from which art is built: spirit, line, shape form color, texture, sound, rhythm, balance. The inspiration can be contained in mind, or expressed as an element of images, words, sound and motion.

Abstraction process can be represented by the following flow chart.

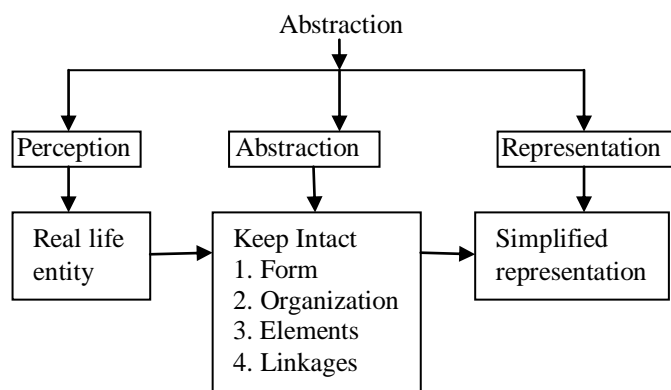


Figure 6: The Process of Abstraction (source: 3)

In first year design education, which is implemented as freshmen year studio training at architecture school and colleges, has a particular importance in developing students' mindsets. In spite of its practical and contextual differences among the institutions worldwide, the first year design studio commonly aims to constitute a particular design language and designerly skills to be internalized and used by the designer lifelong.

In first year design studio when students get acquainted with element and principle of design they are introduced to a creative technique: Abstraction as simplification of natural form.

First exercise based on Abstraction undertaken is Inspiration from Nature:

Aim and objectives: The aim is to develop keen observation and presentation power in students. We selected twig, leaves for scrutiny. Abstraction was the next objective for this exercise.

You may think that the pattern of twigs and branches on trees has no order, but just the opposite is true. The pattern of branches of many plants follows an amazing system called the Fibonacci series, named after a thirteenth century investigator by the name of Fibonacci. His number series looks like this: 1,1,2,3,5,8,13,21,34,55,89,144,233,377

Now, the way this series works is simple. You begin by adding 1+1 to equal 2, then 1+2 to equal 3, 2+3=5, 3+5=8, 5+8=13, and so on.

Process:

Stage 1: Making sketches of Twig from different angles. In this stage we convert 3rd dimensional twig composition in to 2 dimensional composition.



Figure 7: 2D compositions of twig (Source: researcher)

Stage 2: Transforming one of the sketch in 2D composition using line (they can modify the lines if they want)

Stage 3: Converting lines from 2D composition into planes and making interesting 3D composition. (They can use tapering planes and planes with cut out)

Model 1: Extrusion of line to straight plane

Model 2: Extrusion of line to Tapering plane

Model 3: Extrusion of line to Tapering plane with cutouts

Deliverables:

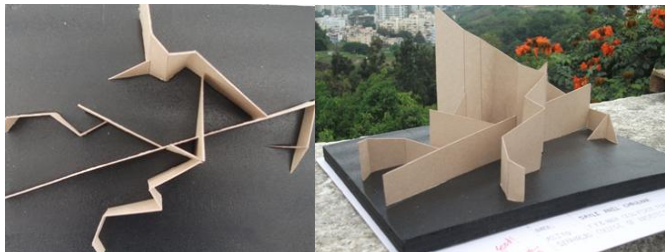


Figure 8: 3D composition of Twig of Student 1 (Model with tapering planes) (Source: Researcher)

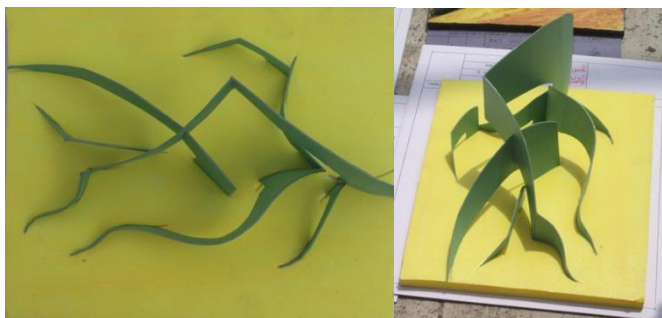


Figure 9: 3D composition of Twig of Student 2 (model: tapering planes with cutout) (source: Researcher)



Figure 10: 3D composition of Twig of Student 3 (model 1: tapering plans and Model 2 tapering planes with cutout) (source: Researcher)



Figure 11: 3D composition of Twig of Student 4 (Source: Researcher)

Stage 4: Assigning activity to a 3D composition e.g. Play area, Exhibition gallery

Inferences from exercise 1:

This was a successful exercise for students. It increased their critical ability to observe minute details create 3D compositions.

Generally its an task for First Year design teachers to bring the student on common platform of understanding and to make them familiar with the vocabulary of visual art. First year is a transition period for students who come from a tradition of vertical thinking fostered by education, hence it needs to be dismantled and a comprehensive thought process should be triggered.

The eligibility criteria for architecture in India being high school graduation in math, creativity and art remain in their infant state.

It is necessary to make these students versatile with the experience of doing something by their own hands that is to create something of their own.

In the first year the design elements and principles are introduced with its grammar developing concurrently and make students understand design through various tangible and intangible channels of creativity.

The students mostly have very vague ideas about the concept of designing. Also they do not understand the difference between the two verbs "designing" and "creating art". The first and foremost aspect, about which all students of design should have clarity, is the concept of "composition". The unconscious mind of any individual of any age knows how to make a choice about good and bad compositions. Daily newspapers, magazines, books have several illustrations in the form of advertisements. Experienced professionals of visual art design all these advertisements. These illustrations are also readily available to the students, and they are constantly being exposed to it. The subjects in these illustrations from magazines, daily newspapers etc. are also full of variety, they

contain human beings, animals, trees, flowers, leaves, mountains, rivers, sand dunes and numerous such subjects. The subjects are either artificially composed or photographed as a composed object.

As a part of their second assignment of abstraction, the students are asked to select a number of such compositions in the form of printed photographs, pictures, advertisements and illustrations from the available books and magazines. Initially their selection is based on the logic "I like it" and "I don't like it". In the question-and-answer session and interaction with the student, students are exposed to the collected material of the whole class, and in a way they visually see 40 times more work than actually they would have done in isolation (each class of first-year architecture has 40 students). After the process of selection of visual material, in order to discover and unmask the basic composition in the pictures, process of abstraction is used. Now from this abstracted version it is easier for students to understand the bare composition made up of basic visual elements like dots, lines, shapes, colors and texture also. For first time students are able to analyze the underlying principles, which make the composition look balanced and proportionate.

When they extrude these compositions they explore 2Dimensional composition to 3Dimensional compositions.

Aim and Objective: The aim of this exercise is to make students sensitive to the quality of space.

Process:

Stage 1: Students are asked to collect several, pictures, photographs and illustrations from magazines or any other material. These pictures are supposed to be the pictures that are "the best" from student's point of view. Subsequently students are asked to make sketches, based on these compositions and to create an abstracted version of the original picture. Abstraction is done in three stages for understanding of students.

Stage 2: Extrude the abstraction. It will automatically convert into a 3D composition. These 3D compositions can be designed with visual and physical connectivity between the spaces and play of light and shadows.

Every three dimensional composition has architectural qualities, deals with the placement of objects in spaces, either outdoor or indoor or deals with the division of spaces. (www.artinarch.com)

Stage 3: Assigning Architectural activity to a 3D composition

Deliverables:

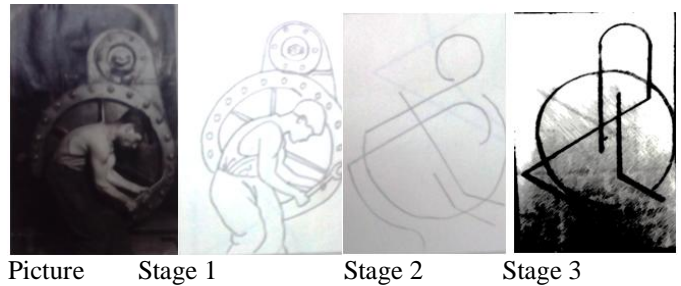


Figure 12: (Student 1): Abstraction Process

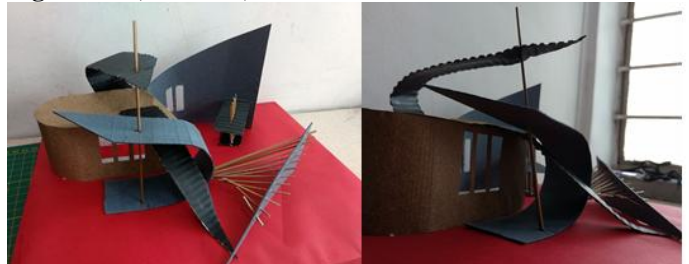


Figure 13: 3D composition of abstraction (Student 1)

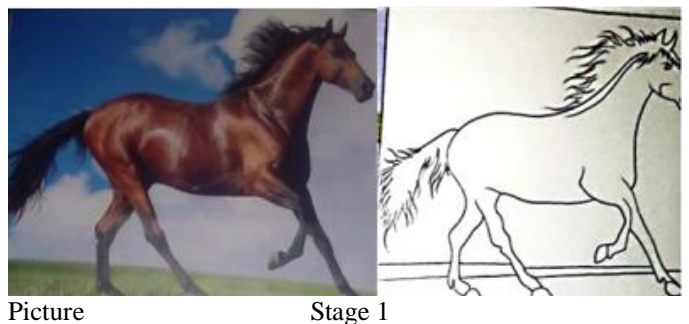


Figure 14: (Student 2) Abstraction Process

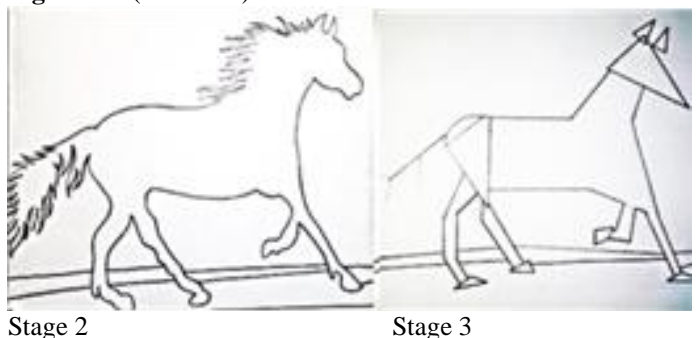


Figure 15: (Student 2) Abstraction Process

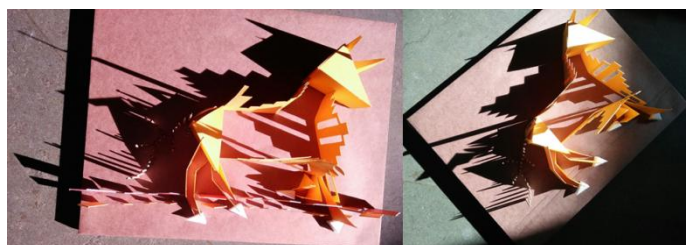
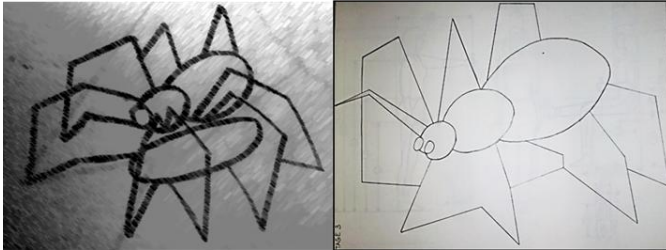


Figure 16: 3D composition of abstraction (Student 2)



Picture Stage1

Figure 17: Abstraction Process of student 3 (Source: Researcher)



Stage 2

Stage 3

Figure 18: Abstraction Process of student 3 (Source: Researcher)

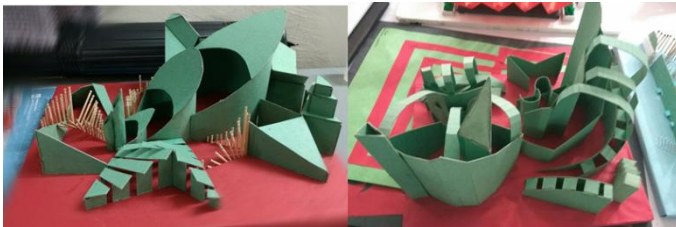


Figure 19: 3D composition of abstraction of Student 3 (Source: Researcher)

Abstracting for architecture is a process by which something innate is revealed, whether willed or not. Abstraction is suggestive, oblique and symbolic. It is a dream, self-expression, and hopefully even true insight. The abstracted element in intuition that specifically links to an Idea and to notion of actual design, that takes on reality as it is developed into building design (Milton stricker)

Conclusion

Purpose to introduce abstraction in first year design process was intended to promote and support design creativity/creative thinking.

Success in any approach to design studies and choice of assignments depends on how these assignments are presented to students and how these assignments are configured.

To achieve growth in visual design thinking, students have to take risks and learn to accept failure positively. Some students may even fail totally at some times, but they need to keep trying to achieve desired result.

Overall Exercise 1 and Exercise 2 were successful to achieve its aim and objectives. The beauty of abstracting nature for the purpose of art, architecture, and life is a timeless idea, but there is no final process, the paper tried to demonstrate an opening step in abstraction for architecture.

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