CREATIVE TECHNIQUES IN ARCHITECTURE DESIGN STUDIO

Ar. Apurva Avinash Gour

Assistant Professor, P. R. Patil College of Architecture, Amravati, Maharashtra
E-mail: ar.apurvagour@gmail.com

Abstract—*Architecture is one of the most distinctive branches of education which requires creative capabilities. Architecture is different than any other courses. It required different approach for its pedagogy. It requires students to learn an entirely new way of thinking and seeing the world. It requires a whole new vocabulary. The architecture design process is based on a creative phase where creativity is highly valued.*

This study aims to understand the essentials of a good design studio focusing on creative techniques, used in architectural design studios to enhance the quality of design output generated by students in initial stage of design. There is an established need to explore various Creativity techniques for idea generation as an integral part of the architectural design pedagogical process. The use of methods that may enhance creativity in architectural design-studios can enhance the final output of design studio produced by students. The study will end by proposing various creative techniques that may enhance creativity in architectural design studios and can improve the final output of design studio produced by students. This study will consequently help in the design of more effective strategies for architectural design studio pedagogy.

1. Introduction

Architecture is one of the most distinctive branches of education which requires creative capabilities. Architecture is different than any other courses. It required different approach for its pedagogy. It requires students to learn an entirely new way of thinking and seeing the world. It requires a whole new vocabulary. It even requires a whole new methods, tools and techniques for various subjects of architectural pedagogy. Design studio is the core subject in architectural curriculum. The architecture design process is based on a creative phase where creativity is highly valued.

2. Design Studio in Architecture Curriculum

There are several definitions for "Architectural design". But it can effectively describe as, "Architectural design involves thinking and visualizing simultaneously in three dimensions-in such a way that resultant composition is expressive and beautiful. For this is required efficient creative ability that no system of training can generate. However, can make possible its fullest development, can direct it along the most profitable lines and can place at its disposal the accumulated experience of the past." (Encyclopedia Britannica, page299) Design studio is a core subject in architectural curriculum. In recent decades universities and architecture schools in particular, have made important efforts to improve design education. A design studio is the main stream of architectural studies into which other subjects are said to integrate with.
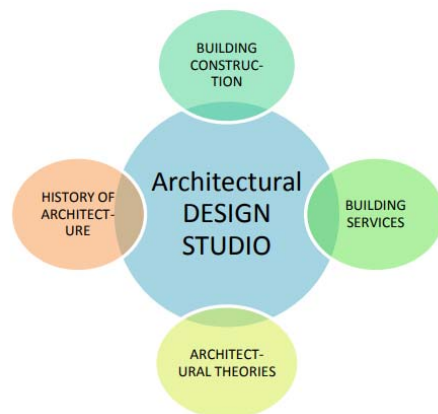

Figure 1: Subjects which supports architectural Design studio (source: self)

3. The Design Process

Architectural design is a process by which we train our students to bring out their thoughts and ideas onto drawing sheets so that others can understand, appreciate or criticize it. It is the process which is more crucial and enduring than the solutions. Bloom Taxonomy in Design Studio: Bloom Taxonomy can be utilized in order to ensure fulfillment of Design Studio learning objectives. The following table depicts the Bloom Taxonomy together with the level of qualities which can be attained at various stages in Architecture Design Studio. Applying blooms taxonomy at appropriate stages of a design project can enhance student's capability in producing new and more appropriate design outputs.
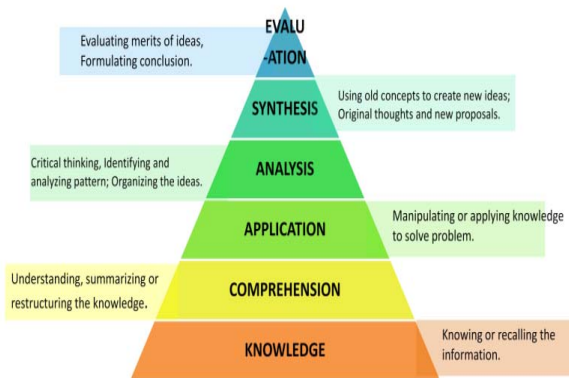
Figure 2: Blooms Texonomy

General process of designing as per blooms taxonomy:

CATEGORY	IN DESIGN STUDIO
KNOWLEDGE	Knowing the design requirement.
COMPREHENSION	Understanding the main objectives of the given design requirements.
APPLICATION	Using the information to execute design or to solve the design problem.
ANALYSIS	Critical thinking, analyzing and making design decision based on facts.
SYNTHESIS	Proposing new and original design solutions.
EVALUATION	Evaluating the merits of the proposed design solution.

Designing is a thinking process. There are various tools and techniques which can be adopted, to generate quality output of given design problem. Here, creativity plays an important role.

4. Defining Creativity In Architectural Education

Creativity is viewed in different ways in different disciplines: in education it is called 'innovation', in business it is 'entrepreneurship', in mathematics it is often equated with 'problem solving', and in music it is 'performance' or 'composition'. (Reid and Petocz 2004). Creativity, as a concept of bringing forward new ideas, is seen by many as the driving force in the design process of field of architectural education. Creativity can be performed both individually and in groups. Creativity is an important element in the production of new knowledge and concepts, meaning or innovation developed, in the medium of the architectural design studio.

Creative Techniques

Creativity techniques are methods that encourage creative actions, whether in any discipline. They focus on a variety of aspects of creativity, including techniques for idea generation,

method of reframing problems, change in the affective environment and so on. They can be use as a part of problem solving or for any artistic expression.

Creative techniques problems can be used for Open & Closed challenges.

These techniques can be used in Individual & Groups.

The techniques are grouped in:

Diverging Techniques and Converging Techniques:

What is divergent thinking and convergent thinking?

We can simply define Divergent Thinking as:

Generating multiple ideas for a given topic.

Whereas, Convergent Thinking is:

Finding 'ONE' right solution to the given problem.

4.1. Divergent Techniques

4.1.1. Attribute Listing:
Attribute listing is a good technique for ensuring all possible aspects of a problem have been examined. Attribute listing is breaking the problem down into smaller and smaller bits and seeing what you discover when you do.

4.1.2. Biomimicry:
Biomimicry is a discipline that studies nature's best ideas and then imitates these designs and processes to solve human problems. Studying a leaf to invent a better solar cell is an example of this "innovation inspired by nature.

4.1.3. Brainwriting:
A creativity tool aimed to address the potential deficiencies of brainstorming (uneven participation and verbally led) by encouraging participation from all, with an emphasis on sketching of ideas.

4.1.4. Classical Brainstorming:

Classical brainstorming became popular during the 1950s, and the stereotype was of a bunch of advertisers cooking up ideas for a new slogan to sell margarine. Originally, a "brainstorm" referred to an acute psychological attack, but in 1920s - 1940s, there were references to "brainstorms" as brilliant ideas (apparently these were originally called "brain waves").

4.1.5. Personal Analogy:

Personal analogy, defined as "the description of how it feels to identify with a concept, process, or living or non-living thing, gives feelings and emotions to both animate and inanimate objects by treating the object as if it were human." Using personal analogy is an indirect way to develop a new context for familiar content and for getting a better understanding of the content. They are particularly useful for content normally viewed as far removed from the human experience.

4.1.6. Osborn Checklist:

The inventor of Brainstorming, Alex Osborn, developed several additional creativity methods. One of the most popular is "Checklist". It's used to develop new solutions from already existing ideas.

Steps: Whatever idea or problem you have, go through the list again. Take enough time for each issue and develop at least one idea for each of them.

Adapt? What's similar, what are parallels, what can you imitate?

Modify? Can you change color, moving, size, shape, tone, smell, etc.?

Substitute? Different process, positions, music, elements from other countries, etc.?

Magnify/Maximize? Increasing frequency, size, height, length, distance, etc.?

Minimize/Eliminate? Lighter, smarter, etc.? Rearrange? Different sequence, etc.?

Reversal? How to mirror the ideas, etc.?

Combine? Is it part of a bigger picture, etc.?

Other use? Is another use possible, etc.?

in this heading, they should be Times 11-point boldface, initially capitalized, flush left, with one blank line before, and one after.

4.2 Converging Techniques:

4.2.1 Negative Selection:

Negative selection is a common approach to thinning down a large list. It is easier to find something wrong with an idea than consider everything that is right. Use it when you need to select an idea from a large list. Use it as a first stage to create a short-list of ideas to consider more carefully.

4.2.2. PINC Filter:

Use the PINC (Positives, Intriguing, Negatives, Concerning) Filter when you have created a number of ideas and you want to select those to carry forward to the next stage of development. Only use the PINC filter after you have reduced the number of ideas to a very short list. Each PINC evaluation is not short, and evaluating many ideas would take a long time. Typically you need less than six and ideally only two or three.

4.2.3. Six Thinking Hats:

Popular technique created by Edward de Bono. Use it in teams where you want to use different types of thinking. Use it where individuals would feel inhibited by taking these roles without prior legitimization. Use it to encourage further use of a range of thinking processes. You can use it to explore ideas when selecting which to take forward. You can use it to explore how other people will react when you try to implement your idea.

4.2.4. Force-Field Analysis:

It is used to understand the forces for and against an idea. Use it to explore how people may oppose or support an idea.

Steps: **Draw the outline diagram** - Draw a line down the middle of the page and put the idea or situation to be considered above the top of the line. Write 'for' and 'against' either side of the line.

Plot opposing forces - Seek forces for and against the idea or situation, writing these on the appropriate side of the line. Show the significance of these forces with an arrow, where the length indicates the size of the force. You can use logical or creative methods to identify these forces, as appropriate to the situation. If the situation is understood, then logic is appropriate. However, many uses of the force-field is in considering future possibilities, in which case a creative approach is most effective.

Draw conclusions - Study the diagram, considering the forces identified there and ask questions such as:
- What is the overall force, for and against?
- How can you neutralize forces against?
- How can you increase the 'for' forces?

5. Conclusion:

Creative techniques can influence the level and frequency of creative behaviors of students and can encourage creativity, which will facilitate learning and knowledge creation in the organization of the design studio that is the core of design education. Creativity is the production of useful and noble ideas, and it can be taken as a starting point for learning and knowledge creation. It is also broadly influenced by the orientation to innovate, availability of resources, and practices that encourage challenge, freedom and risk-taking. There is an established need to explore various Creativity techniques for idea generation as an integral part of the architectural design pedagogical process. The use of methods that may enhance creativity in architectural design studios can enhance the final output of design studio produced by students. This study will consequently help in the design of more effective strategies for architectural design studio pedagogy.

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