

RE-CREATION; NON-REFERENTIAL SPATIAL  
CONFIGURATIONS- ARCHITECTURE STUDIO TEACHING

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ABSTRACT

Elements are just like alphabets of a language; composing and combining them could result in a meaningful expression. Syntax - Grammar provides the rules and regulations for forming a lingual expression, while 'Designs Principles' could be taken as suggestive and subjective systems to gel the basic *Elements of Design* more eloquently. Precedent-based teaching and learning is an effective method of exposing fresh minds to the realm of comprehending design solutions that have already taken place. However, it tends to inspire fresh minds to the point where a process of repetition and replication of cherished precedents can take place. The process, which is espoused here, is that of evolving alternate design solutions. Methodology for this empirical system of teaching consists of interlinked stages; *Sense of Composition* - Students are introduced to basic concepts of elements and principles of design. *Personal Interpretation* - Students are then asked to formulate their interpretation of those abstract definitions of elements and principles of design. *Manifestation in 2D followed by 3D transformation* - A process of objective translation is followed, where students experiment to come up with the most relevant planer and volumetric compositions. *Architectural Representation* - In the final stage of the architectural design challenge, the task of mediums interconversion is undertaken, which helps understand and relate Layered Planer systems- 2D (Plans, Elevations, and Sections) and 3D (Physical Models). This paper focuses on elaborating the empirical processes that were designed to amplify architectural design thinking with a focused group i.e. the foundation years. The objective is to generate alternate design products by evolving non-referential spatial configurations. The exploration of Design basics is carried out scientifically. This method will train students to innovate and recreate by taking the basics of design as an embryo.

KEYWORDS

Architecture Pedagogy, design activity, design process, creative design, Architectural Representations.

## INTRODUCTION

“The architecture of a building, a group of buildings, a city, a garden... is considered to be a conceptual organization of its parts into a whole, its intellectual structure.” Simon Unwin - *Analyzing Architecture* (Unwin, 2002).

Students develop skills and technical knowledge in the design studio, which is the core of architectural education (Lawson, 2013). A studio is a physical place where studying and teaching activities take place in academia. From a didactic, sociological, ideological, and epistemological standpoint, it differs from traditional classrooms (Demirbaş & Demirkan, 2003). Contemporary design studios are not different from the studios of the French Royal Academy of Fine Arts or the *École des Beaux-Arts* of the nineteenth century (Ciravoğlu, 2014; Crowther, 2013; Gray, 2013). This method is particularly popular in architectural schools, where an instructor instructs 15-20 students. The traditional master-apprentice relationship is formed to convey knowledge, although learning in the studios is informal. It has moveable and adjustable furniture, drawing or drafting spaces, model-making spaces, digital presentation screens, display boards, and display corners on the physical plane. All students are required to follow the instructor's directions and respond to the instructor's weekly feedback. The study term is usually concluded with a project presentation and a critic, or assessment by a panel of academics (Crowther, 2013).

### 1. ARCHITECTURAL STUDIO PEDAGOGY

Architectural design is taught in the studio, which involves interaction between teachers and students as well as the provision of the essential critique. The basic goal of studio teaching is to make learning easier by having students perform things. Learning in a design studio is dependent on the communication of creative ideas and the compatibility of the studio's pedagogy with the students' learning styles (Demirbaş & Demirkan, 2003). Design is taught as a flexible and never-ending phenomenon, which could be achieved through a variety of thinking processes (Deamer, Deeg, Metz, & Tursky, 2020).

Going deeper into the debate on studio pedagogy, we'd want to talk about the importance of studio practices in architectural education. Architectural education is a protracted process that must be completed to develop a universal equivalent i.e. an architect. An architect is a person who has been shaped with unique marketable talents, which are more dependent on the manner of education delivery, i.e. communication model. The entire undergraduate degree in architecture is five years, and those marketable skills are taught, developed, and polished each year. The amount of knowledge supplied and accumulated has a strong relationship with individual student competence. If we consider early years students, who have little experience, they are taught to experiment with simple forms, shelter, patterns, and a variety of other things at a rather basic level (Crysler, 1995). The first years of education are critical, because students are in their infancy in terms of intelligence, and they try to be exposed to architecture as much as possible. Students are also taught to accept a hierarchical structure based on elite-defined knowledge and experience in these years (Varnelis, 1994).

In architectural education students and teachers are linked to contributing to the school's reputational worth, especially in studio-based teaching alongside the curriculum of any program.

Clarification of the knowledge transmitted in the studio is a studio component that requires attention. In architecture, the centrality of the design studio is clear because all subjects swirl around it, and specialized knowledge is passed down in clusters around the core design subject. Is it the accumulation of the knowledge or the skills to search for the required information when needed? There can be a healthy debate on it. But as many educational researchers suggest that the skills of knowing things when needed are more important than the storing of the knowledge itself. Cross points out that designers have their own needs to know, ways of knowing them, and ways of finding out about themselves (Cross, 1982).

As students interact with each other during the long studio hours almost two or three days a week, performing assigned tasks, monitoring other students' progress, commenting on each other's work, comparing each other's approaches to certain things, while learning various skills from each other, including but not limited to model making, drawing, ways of doing things, and so on. Furthermore, the students are gaining a lot more from hearing, witnessing, and discussing the other students' desk reviews and discussions (Oh, Ishizaki, Gross, & Yi-Luen Do, 2013).

In Architecture design, studio tasks are designed in a manner that is directed to inculcate in students this basic disposition by leading them through multiple approaches and design processes (Demirbaş & Demirkan, 2003). K. Cennamo and C. Brandt have proposed several important guidelines to be followed while implementing the studio-based approach. It entails assigning the identical job to all students, providing opportunities for all students to share their work, providing public feedback to both teachers and students, having meta discussions about essential ideas, and encouraging iteration while working (Cennamo & Brandt, 2012). A proper form of design knowledge can be co-created by following all of these recommendations.

While conducting the architectural studio, it is critical to evaluate the sequence of various activities and when to delegate them. The terminology and chronology are considerably more reliant on the instructor's and student's needs, and there is no one-size-fits-all approach that can be followed because it differs from project to project and the communication model used in each studio (Carpenter, Valley, Napier, & Apostel, 2012; Cryslar, 1995; Jacobs & Utting, 2019; Salama, 2007). For example, Baum, Edward M. has chronicled the sequence of multiple steps required for presenting design ideas to students in basic architecture classes using the notion of "scaffolding" (Baum, 2013). Nicolette has proposed four domains, including project methods, which consist of independent tasks that students must accomplish and typically span several stages of growth, are more investigative in nature, acquire knowledge, effectively apply knowledge, and skills enhancement (Lee, 2009).

This paper will elucidate such experimental methods that surround the principal idea - "Design from Within". Self-Exploration as basic design aptitude is the principle of these processes. A sequence of tasks is designed to tweak the thinking patterns of architecture students at the foundation level (Ledewitz, 1985).

These processes are routed through a personal assessment of existing imaginative horizons on an individual level and lead to the readjustment of self-created boundaries.

Personal Motivation and Curiosity are augmented via setting up a chain of small goals in a playful setting for the achievement of some 'Formal and Spatial' clues, which could prove to be very meaningful at the advanced stages of architecture education/profession. These Formal cum Spatial organizations follow an organized route while the outcomes are very interesting and have unpredictable dimensions to them. These outcomes may offer unique attributes to actual architectural products. Individuality in Formal compositions and Exclusivity in the design sense is stirred on the individual level by nurturing their dormant meditative modes.

## 2. LIMITS AND OBJECTIVES

The inventive procedures are designed to provide;

- The starting point for students' intrinsic journey to generate more original designs.
- It helps understand limitations not as a strict boundary but as a bunch of opportunities that bring with themselves a set of design prospects.
- Limits assert precision and may stir more focused responses in design thinking.

## 3. RESEARCH METHODOLOGY

The methodology to conduct this exploratory research includes a range of literary studies that underlines design processes and their importance in conducting a successful Architectural design studio. This studio teaching method intends to develop an inductive system to involve students in a systematic process to explore ideas of design from within. Ingenuity and originality are realized through a stepwise guide to carry out the architecture design pedagogy according to a non-referential set of procedures. Any direct reference to an active physical architectural object or product of any sort is neither instructed nor encouraged. Five major levels are involved in this method, detailed as under, that formulates a stepwise system to guide students at the basic level. The system of architecture studio teaching is carefully designed in a manner, to begin with very simple and basic ideas maturing gradually to more complex processes that can lead to unique design solutions.

## 4. STUDIO MODUS

Various Empirical instruction models are designed that establish regulations for Formal & Spatial experiments. A plan is devised, where the target is achieved via a sequence of small and rigorous studio sessions. A total of six stages are developed, in this studio method, every task is connected with every other. The studio was started from simple and easily relatable objects and ideas; however, the complexity of the exercises raises with every passing stage.

- Stage 1:** Visual interpretations of Design Principles – Abstract concepts into objects.
- Stage 2:** Study of Design Principles through Basic Shapes – Limits of shape introduced.
- Stage 3:** Multiple Design Principles in One arrangement – Experimenting with the multiplicity.
- Stage 4** Multiple Design Principles in One arrangement in 3d – Conversion of medium.

**Stage 5:** Architectural Drawings – 3d into 2D.

**Stage 6:** 3d Assembly and final Drawings - Final 3D and its Plans, Sections & Elevations.

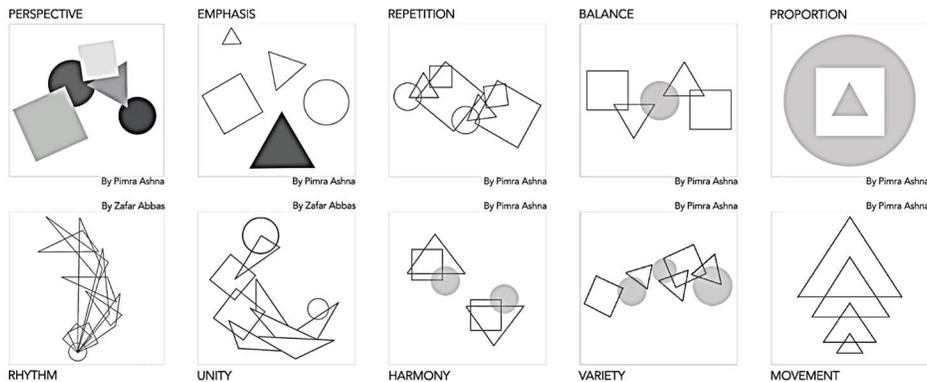
These stages are detailed below.

#### 4.1 Teaching Method

**Study of Design Principles:** As an introduction to the session, a discourse is coordinated on ‘Design Basics’. For creating active thinking and learning environment a warm interactive session was conducted. A handout comprising customary definitions of Design Elements and Principles is also shared with students to further process the text intensely to generate unsullied perceptual responses in the form of visuals. The correlation of text and visuals on a personal level gives way to more unique and personalized design outcomes. The task comprises the following system of processes.

##### 4.1.1 Stage 1: Visual interpretations of Design Principles

A Graphic translation of the subjective and more abstract definitions of Design principles was individually carried out by students. At this stage, students were instructed to use three basic shapes to express their understanding of design principles. Figure 1.

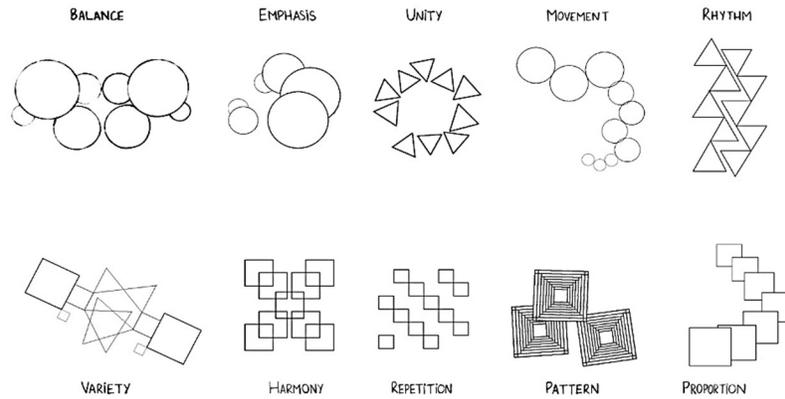


**Figure 1: Principles of Design**

Recreation of the Students’ Responses: Illustrations Expressing Design Principles using Basic Shapes.

##### 4.1.2 Stage 2: Study of Design Principles through Basic Shapes

Graphic understanding of the subjective Design principles was further explored. At this stage, the expression was given a system by introducing the rule of using a single basic shape for each principle of design. The task was designed to let students explore each principle separately by using a single shape multiple times to visually express design principles. Figure 2 seems to be more orderly as compared to the use of elements in Figure 1 which was done in the previous stage.

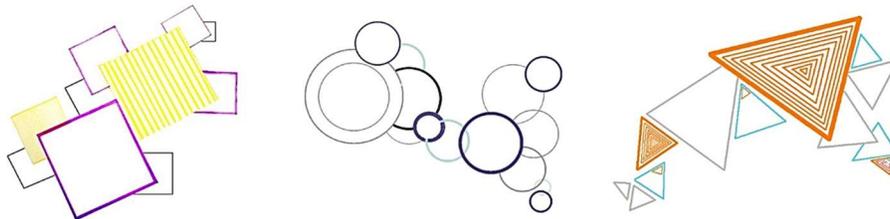


**Figure 2: Principles of Design**

Recreation of student's (Amal Tariq) visual interpretation of design principle as a response to the studio interactive sessions on the subject, followed by instruction guidelines and submission requirements, distributed in the Studio.

#### 4.1.3 Stage 3: Multiple Design Principles in One arrangement

Graphic interpretations of a generic understanding of Design Principles were then practiced on an advanced stage. At this stage, some more design limits were introduced. Students were made cognizant to use multiple sizes, colors, orientations, and numbers of single basic shapes to achieve 2D arrangements. Each arrangement would express at least 4 to 5 design principles based on the deductions made in the previous stage and make further adjustments as and when the need is felt. In Figure 3, three different compositions of three different basic shapes are realized following studio guidelines i.e. translation into the world of visuals using three basic shapes i.e. Triangle, Square, and Circles.



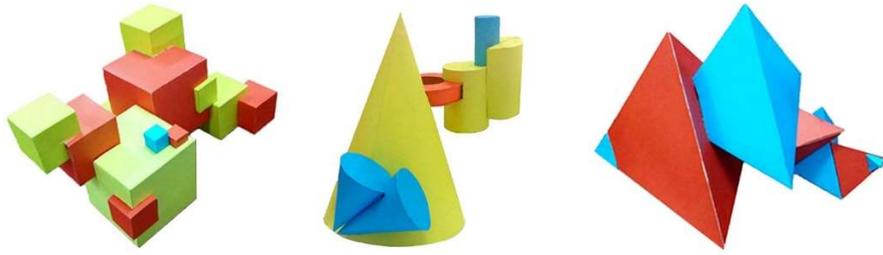
**Figure 3: Principles of Design**

Recreation of student's (Isbah Javed) interpretation of given guidelines at this stage. Three different compositions are worked out following the instructions given at this stage of Architecture design studio.

#### 4.1.4 Stage 4: Multiple Design Principles in One arrangement in 3d

At this stage, the compositions in response to the idea of Design Principles, following given limits, were to be given 3rd dimension. A series of interesting, innovative, and pure to its core; forms started popping up. These formal configurations were both planned yet accidental for the students. The results were incredibly genuine and based on very logical

steps to its so far evolved manifestation. In Figure 4 three different forms are popping up from the previously worked out arrangements. At this stage, it was instructed to revisit the so far inferred compositions and evolve them as per the newer limitations and opportunities, offered by both medium and materials. Flexibility, Modifications, and Refinement were thus taught as intrinsic values of design development processes.



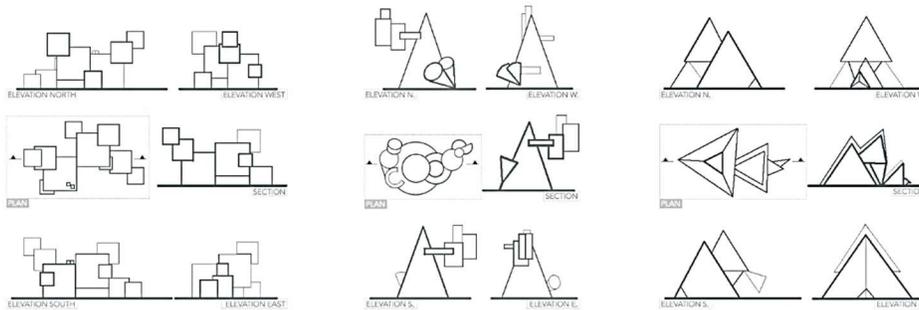
**Figure 4: Principles of Design in 3 Dimensions**

Representation of student's (Isbah Javed) 3D interpretations of the design principles. Every model is a separate entity and is an expression of multiple design principles in one composition.

#### 4.1.5 Stage 5: Architectural Drawings

Plans, Elevations, and Sections of the 3D forms that evolved in the last stage were drawn in this stage. At this stage interconversions of Scale, Mediums, and Technical methods of drafting and looking at Forms were taught to enthuse Perceptions. This stage is essential for teaching students the technical aspect of design and Perception. Figure 5, shows a detailed set of drawings for all the three design forms that were so far finalized. The technical drawings cover all sides and measurements of the models. The idea of handling interconversion of architectural Scales and measuring Units was also explored and applied while drawing the objects.

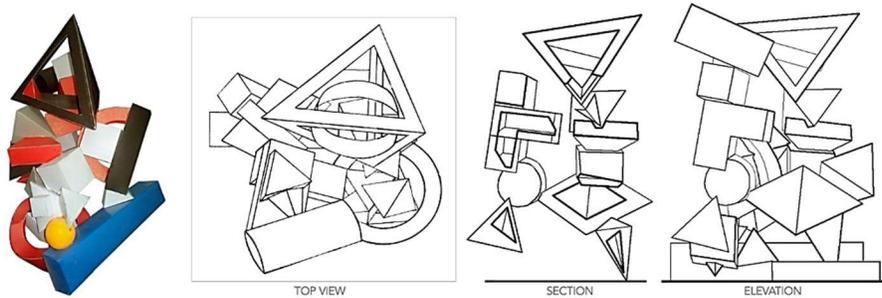
#### 4.1.6 Stage 6: 3d Assembly and Final Drawings



**Figure 5: Technical Drawings**

2D drawings, covering all sides of 3D Models generated in the previous stage are produced. This step is helpful for further refinement of design thinking and learning standardized Architectural expressions.

At this stage, all the models designed at stage 4 were combined to generate a composite form. Figure 6. A detailed set of 2D drawings were later produced for polishing the students' ability to perceive both in 2D and 3D. This conversion of 3D into 2D will equip students with technical knowledge of building and imagining. Plans, Sections & Elevations of the final 3D form are shown in Figure 6.



**Figure 6: Composite Form and Technical Drawings**

This stage is an assemblage of the previously worked out 3d compositions. Technical drawings are generated after the composite arrangement is been finalized.

## 5. CONCLUSIONS

The design studio is at the center of architectural education, where students are exposed to a new universe of creation and recreations through a well-documented pedagogical method known as "Learning by Doing." Architectural education is principally unfolding itself each passing day. Teaching architectural design means a diversity of philosophies to a diversity of experts; each educator teaches according to his/ her own set of dogmas and viewpoints, in a manner that might have some degree of distinction. There is a tremendous range of contents, areas of emphasis, and methods of teaching in different schools.

Design education at times suffers from a lack of intellectual objectivity, which has in part been caused by the subjective knowledge base on one hand and the other; impulse-based architecture pedagogy for the attainment of something that cannot purely be impulsive but has to respond to greater spheres of logic in the sense of not only performance and purpose but as well it has to have an ever-young knack for creativity.

Students (practicing architects of the future) tend to imitate the style of fashionable architects without understanding the relevance of their creation and its implications can affect the architecture profession in a deadly manner. In circumstances, where designers are less cognizant of their projects' users will incorrectly predict the appropriateness of the solutions, they design for a context in which these design products are placed. Similarly, if students (practicing architects of the future) limit their view of architecture design as an opportunity to express their inner inspired cum creative urges, rather than as a challenge to resolve a complex set of technical and social issues; it will also relegate the relevance of architecture as a valid response to changing needs and time. There is also a great tendency of Formal Replication and Formal plagiarism. For prompting originality and greater design

relevance with improved efficiency, academia needs to overhaul its approach towards architecture design and design processes.

The system of teaching Architecture Studio that is practiced on the basic level and documented in this article is a response to the foregoing discourse and is a step in that direction. Systems and methods to conduct architecture studio need to be further explored, documented, and shared with co-professionals for creating a variety that will further reinforce architecture academia.

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