

BASIC DESIGN STUDIO

AN ONGOING RESEARCH

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ABSTRACT

ABC of any design means Aesthetics, Basic Design and Creativity. Basic Design- the basics of design and rightly called the "Mother of all Designs". Its journey begins with basic elements and culminates in Spatial Perception.

Spatial perception can be perceived and experienced very interestingly by students in the first year of Architecture.

The eligibility criteria for Architecture in India being high school graduation in math, creativity and art remain in their infant state. This sometimes makes it difficult for students to understand art, architecture and art in architecture.

Basic design studio serves an important purpose of initiating creativity and thereby appreciation of art in many forms. The studio is continuous research which cuts a window in the mind of student and enables the teacher to evaluate as well facilitate the student for higher courses in succeeding years

This paper illustratively demonstrates successive observations regarding Basic Design studio and its influence on architectural design in the higher classes. The research is a longitudinal study of the studio output of a sample of students of BKPS College of Architecture, Pune, India. Results indicate that the students who excelled in Basic Design displayed better understanding of space and in the higher classes, but needed specialized input with regard to building construction.

KEYWORDS: Basic design, Art, Architecture, Construction, Evaluation research.

1.0 INTRODUCTION

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

A Creative act or Creativity is process when an original or a new theory, a postulate or a hypothesis, results in the permutation or combination of both are brought together to offer generative alternatives. This is the initiation of a Design process in a fresh and sensitive mind

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)

J Christopher Jones says "the effect of design is to initiate change in man made things." Hence the design process is a systematic way of accomplishing something. (Jones- 1980)

The purpose of design education is to liberate the mind from the set pattern and tread on paths unknown. The objective is to tackle students from varied backgrounds to a highly focused training in analytical abilities, visualization, communication and representational skills.

Introduction to the creative method through design principles and taking the mind of the student from the "known to the unknown" is a continuous process. A creative stimulus is possible if the creative stimulus is first introduced and is preceded by design exercises.

2.0 APPROACHES TO BASIC DESIGN PEDAGOGY

When a Creative spirit stirs, it animates a style of being a lifetime filled with desire to innovate, to explore new ways of doing things to bring dreams of reality. (De Bono- 1982)

The body of knowledge associated with Basic Design may be regarded as a part of general theory of teaching and learning design as practiced in many design schools which has its origins in Bauhaus.

Geoffrey Broadbent in his book **Design in Architecture** elaborates that design can be taught as

Iconic Design: Where repetition of an icon is so adopted that the community accepts it.

Ana logic Design: When ancient buildings are used as an analogy to power preservation.

Canonic Design: When a geometric system is adopted such in the Greek Temples or as in Le Corbusier modular man.

The art of expression through visual grammar and aesthetics in architecture concerns with the philosophical difference between the two sentences: **"Spaces in architecture,"** and **"Architecture in Spaces"**.

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. Architecture is actually a the art of space arrangement but any work of building construction which has live able space need not have architectural qualities, but knowledge of building construction is necessary to build all architectural spaces. (www.artinarchi.com)

It is to be impressed upon the students that the relation between subjects of Basic Design, Architectural Design and Building Technology, as an integrated trio with inputs from other subjects to enhance the understanding of space.

3.0 NEED FOR RESEARCH

The general perception and practice in teaching Basic Design is that it promotes a holistic, creative and experimental methodology that develops the learning style and the cognitive abilities of the student with respect to fundamental principles of design.

The Basic design Studio serves an important purpose of initiating creativity and hereby appreciation of visual language. The studio is a continuous research, which cuts a window in the minds of the students about spatial perception. It also exposes students to a plethora of possibilities that exists in the world of space. For a class of students coming from a traditional vertical school of thought this is a process of un-learning and re-learning.

As an educational program "Basic Design" can often be enhanced more by curiosity and experiences than, by the theoretical content of the subject. It is generally accepted that this form of teaching and learning develops the creative spirit of the student.

As the course structure for Basic Design as educated in schools of Architecture is different from other streams of design like graphic design or industrial design, it should be ascertained whether the Basic Design studio assignments help to unlock the students' creativity and enhance the spatial perception. The tangible outcome of these extensive studio assignments is, to corroborate the perception of space in architectural design in the initial years, as well as, in the later years with support from adequate know-how in construction.

The need of this research is to validate these objectives and to verify a correlation between Basic Design, Architectural design and Building Technology and Materials.

4.0 RESEARCH OBJECTIVES

“Nothing is taught, unless it is learnt”. (De Bono, 1984)

Design pedagogy in these courses is the sole determinant of the most significant opportunities for students to acquire skills and knowledge that constitute the foundation for continuous growth in later years. Experiences acquired in the beginning design courses constituted a vectorial beginning in the design profession. Learning theory, explicitly or implicitly has always been fundamental to a design studio at any institute.

The objectives of this research were:

- To study the students' outcome in Basic Design with respect to pedagogic objectives and creativity in design in our school.
- To correlate Basic Design and Architectural Design conducted in the Second Year with Architectural Design and Building Technology in the Fourth Year, involving the same sample of students.

5.0 RESEARCH PARADIGM

The qualitative paradigm was adopted to explore and understand students' outcome using basic design curriculum in conjunction with lecturers' feedback about the studios of basic design.

Along with this qualitative exploration, quantitative analysis of marks in the subjects of Basic Design and Architectural Design of a second year student and Architectural Design, Building technology and Materials of the same student when in fourth year, was made. Statistical test was conducted using Pearson test to understand the same.

6.0 RESEARCH METHOD

6.1 Qualitative Study

Creativity is the process by which imagination exists in the world. As a process it is indeed ultimate, it is universal of universals, characterizing with ultimate matter and fact. In a sense, creativity is synonymous with Aristotle's prime matter, except that creativity is neither passive nor receptive. But, may be seen as the absolute active ground of all that comes into being in itself indescribable. Creativity can be ever present to include that ultimate notion of all activities of man be scientific, cultural or artistic. (Anthony- 1992)

Basic design Curriculum of the University of Pune

The course structure for basic design has to be different from any other art form such as graphic design, industrial design or fine arts. The syllabus of basic design cannot be covered only in one year. In the first year, the design elements and principles are introduced with its grammar developing concurrently. In second year, the students understand basic design through various tangible and intangible channels of creativity. The aim of the curriculum is to make students sensitive to the quality of space.

6.1.1 First Year Basic Design

Objective:

The first year is a period of transition for students who come from a tradition of vertical thinking fostered by the education, hence it needs to be dismantled and a comprehensive thought process should be triggered.

The syllabus of the First Year aims to introduce a creative stimulus and provide a starting point towards Visual design and Basic elements in design i.e. Points, lines, planes and solids along with their application. The creative exercises are designed with these elements in conjunction with the design principles. These ordering principles help to convert the vision into visuals.

Pedagogic Strategy:

The studio assignments focus on basic elements and the theory associated with design principles.

Axis -as a line about which, forms and spaces are arranged. Symmetry- a balanced distribution of equivalent forms around a central axis. Rhythm -use of recurring and their resultant rhythm. Datum -a line, plane or volume which by its continuity serves to gather and organize. Transformation-the principle that an architectural concept or organization can be retained and strengthened, through a series of discrete manipulations and transformation. (Ching- 1979)

The exercises in the design studio focus on these principles as an ordering system. During the process the relationship between form and space, forms an integral part of the study. Form as a positive element and the space surrounding it as a negative space. This enforces the relation between positive and negative as an inseparable element of basic design and subsequently architectural design.

6.1.2 Second Year Basic Design

De Bono observes that:

“Teaching thinking is not easy because Thinking is intangible. Education teaches knowledge because there is nothing else to teach. But Knowledge is more a substitute for thinking than thinking is a substitute for Knowledge. (De Bono-1982)

The syllabus of Basic design in the second year of the five year course in architecture is designed exactly to widen and explore the Channels of Creativity. These Channels of Creativity help to stimulate one’s mind and create design. These are developed by breaking out of ‘concept prisons’ of old ideas and introducing the students to **LATERAL THINKING**. It is quite distinct from Vertical thinking. Lateral thinking generates more alternatives that are capable of culminating in design. **DESIGN PROCESS AS A THINKING PROCESS** makes the students more proactive and analytical.

Objective

The Process of Creativity is initiated either through brainstorming sessions or through a design exercise. It helps find and unlock one’s own brand of Creativity and hereby practice it at a later stage. These assignments help to stimulate one’s imagination and resort to “in the box,” out of the box,” and “new box” thinking. Creative ability awakens the psychological qualities, builds up the skills and adds a new dimension to the intellect of the student.

Pedagogic Strategy

To elaborate and enhance the process of Creativity, project based studio experience is essential. To achieve this, a "Design Parameter Approach," focusing on the simplification and systematic organization of the programmatic input, is required. This optimizes the manageability and applicability of the project.

The assignments to augment creativity are as under:

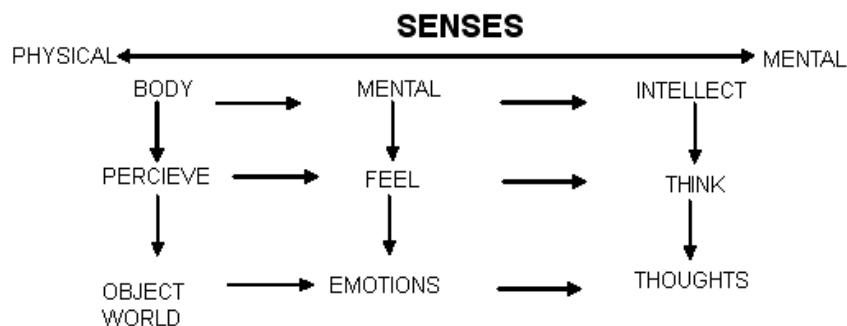
01. Creation, Creativity and Motivation
02. Psychological qualities, skills and behavior for creativity
03. Role of experience and memory in design
04. Role of Fantasy, imagination and reality in design
05. Blocks to Creativity: Mental and Physical

To exemplify the outcome of these exercises, one assignment to ascertain the role of fantasy, imagination and reality in design has been demonstrated.

- 1) *Fantasy, Imagination & Reality*: Author, actor and director Stanislavski wrote, "Imagination creates things that can be or that can happen, whereas fantasy invents things that are not in existence, which never have been or will be." (S. Constantine. - 1984)

The study would include, fantasizing a concept that is in, the clouds. Imagining it- that is in, an unfertilized state of a thought and changing it into the fertilized state that is- reality

Design thinking, involving the physical and mental senses, includes the body and the intellect. It can well be demonstrated graphically as:



Design Assignment: The said channel is formulated into an assignment for the studio class in following ways; Witches Den, Fantasy Land, An Astronauts' Workstation on the moon. It triggers the fantasy, and changes the unfertilized state into a fertilized state of thought.



The design brief specified that an astronaut's workstation was to be designed on the moon complete with working and living conveniences. This implicated comprehensive study of environmental conditions on the moon. Imagination and fantasy explore the possibility of such a development in the near future. These visuals exemplify the astronaut's workstation. As the

endeavor was to fantasize, emphasis on the validity of structure was reduced.

Along with the Process of Creativity, studio assignments are conducted as Techniques to improve Creativity. These short assignments under the following subjects add a new dimension to ingenuity of a student.

Techniques to improve creativity are:

- | | | |
|-------------------------------|---------------------------|---------------------------------|
| 01. Brainstorming | 02. Lateral thinking | 03. List of Mental Associations |
| 04. Random Combinations | 05. Matrix of Ideas | 06. Random Combinations |
| 07. Use of Manipulative Verbs | 08. Tree of Possibilities | 09. Abstraction |
| 10. Transformation | 11. Use of the Ridiculous | |

To exemplify the outcome of these techniques, assignments on Transformation and Use of Manipulative Verbs, have been demonstrated.

Transformation: "Form follows function" was the major theme of modern movement in architecture. The critics of the modern movement in the mid 1970s dismissed the whole modern movement. Today practicing design instructors and students are seriously involved with this channel of creativity. J. Silvetti has described transformation with regard to architecture as **"an operation performed on an element of a given existent code which departs from the original, normal, or canonical usage of code by distorting, regrouping, reassembling or in general altering it in a way that it maintains its reference to the original while tending to produce a new meaning."** (Jorge- 1977)

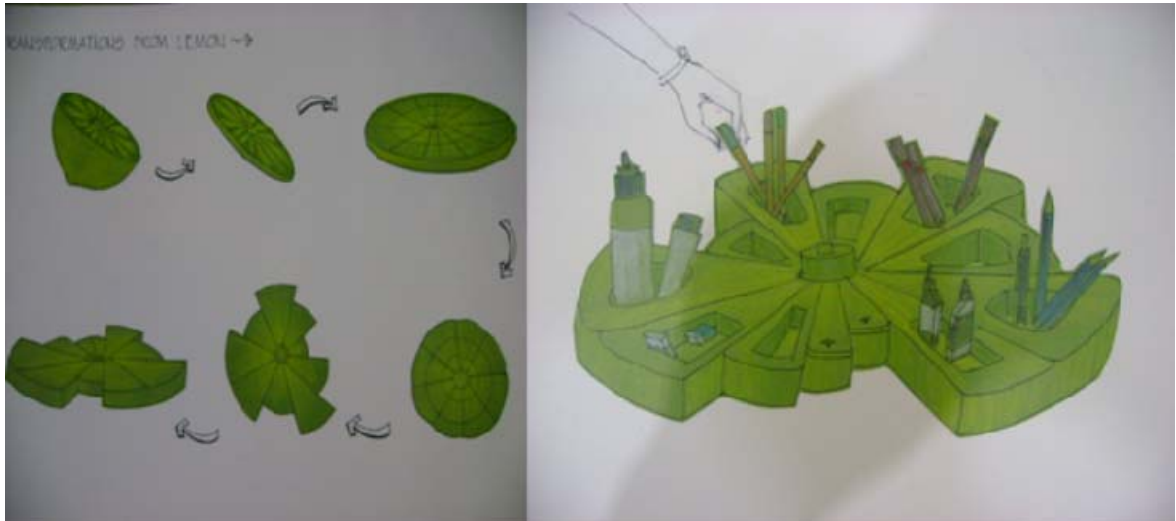
Broadly it can be distinguished into 3 major categories

- 1) The traditional strategy - progressive evolution of form
- 2) Borrowing – license of borrowings from paintings, sculpture and other artifacts.
- 3) Deconstruction or decomposition - process in which one takes a given whole apart and finds new ways to combine the parts.

D'Arcy Thompson a biologist in his major work "On Growth and Form" used mathematical and analytical forms and compared them through scientific methodology. According to him, " **Transformation is a process and phenomenon of the change of form under altering conditions**". (Thompson-)

Design Assignment: An insect or vegetable was studied with respect to form, colors, texture sense of arrangement of different parts of the body and characteristic features if any. It was deconstructed, constructed and transformed into objects of everyday use. The process of progressive evolution and the method, in which body parts can be assembled, and the original specimen is transformed into an entirely new object, is the intention of the exercise. Hence according to Thompson we obtain a new figure which represents the old figure under a more or less homogenous strain, (Thompson- .)

The assignments exemplified, qualify to become the Intangible Channels of Creativity in Design.



These visuals illustrate the process of deconstructing, constructing and transforming a lemon into a multi-utility table top item.

Manipulative Verbs: Biologist Thompson believed that there is a dual possibility of describing any form at any given time.

01. **Descriptive-** Through the use of words.

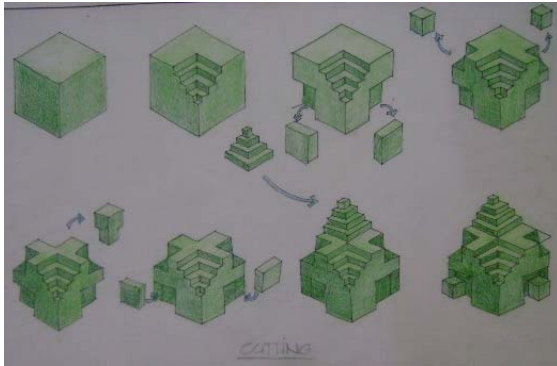
02. **Analytical-** Through use of numbers, mathematics, and the Cartesian Coordinates.

Common words and verbs mean different things and can be applied differently especially where built forms are concerned. Interestingly various expressions can be applied to buildings- eg. Zaha Hadid's buildings challenge the notions of tranquility and gravity. Zaha Hadid's philosophy of fluidity, fragmented geometry makes her buildings startling and distinct. Alex Wall wrote about Hadid's studio,

"The goal of transforming architecture requires literacy and analytical skills that is rarely found in fourth and fifth year students and it only through suggestive power of drawings that these aims can be approached". The danger is that the drawings can become so fluent, skating over the real issues and, in a breathless whirl of brush and pen, create startling images which have no authority. (Wall – 1986)

Design Assignment: Suggestive of the name, this channel of Creativity explores the possibility of forms derived by applying basic verbs to a cube, resulting in plethora of possibilities. The assignment on whole v/s part can be understood as;

- A basic shape is chosen
- A list of action words or manipulative verbs is explored to manipulate the basic form.
- A pyramid of unique shapes or ideas is formed and a building typology using these forms is explored.



The cube is 10x10x10cm the manipulative verbs applied are cut, slice, pierce etc. are applied to manipulate into a totally new form. The derived form is researched to resemble an existing built form. This is a unique experience to understand Deconstructing & Constructing of a platonic solid.

Channels of Creativity can be furthered with Sources of Inspiration for Architectural Creativity. The study undertaken relates more toward the design of elements in Architecture.

“Drawing in a sketchbook, teaches, first to look, and then to observe and finally perhaps to discover And it is then that the inspiration might come”. (Le Corbusier)

The sources of Inspiration for Architectural Creativity include the subsequent subjects:

- | | | |
|----------------------------|------------------------------|---------------------------------|
| 01. History | 02. Nature and Climate | 03. Architectural Biographies |
| 04. Material | 05. Geometry | 06. Mimesis |
| 07. Paradox and Anticlimax | 08. Exotic and Multicultural | 09. Association with Other Arts |

To exemplify this channel of Creativity, two studio assignments on Sources of Inspiration are demonstrated.

01) History: Architectural education today emphasizes a path to creativity through history and a specialized research on precedents. Leading institutes as well as publications like “The Journal of Architectural Education” have played a pioneering role in the study of history in design education. Historicism looks only at form whereas history examines the cultural, technological and philosophical parameters that have shaped the architecture in a particular period. The most important aspect of learning from history is the difference between copy, pastiche and imitation. Innovation begins with an individual, is imitated by an elite group, is accepted and assimilated by the masses, which then becomes a part of culture and later history.

The correct use of history for a creative designer would include the following concerns

- Reference to the local historical prototype
- Reference to global prototype
- Reference to “remote” as well as “closer” historic types
- Rounded exploration of historic precedent
- Critical judgment in the selection and kind of precedent.

Some historical precedents, useful for researchers are: the Palace of Knossos, Alhambra and Generalife of Granada. Architect Michael Graves who depended on the use of history and precedents wrote that, “There is a bias or a point of view through which an architect looks at his precedents”. According to

Antoniades Anthony the best architects of this century were highly versed in classical Greece and Renaissance, and Alvar Alto is a premier example of this. (Antoniades – 1979)

Design Assignment: The studio assignment is premeditated in conjunction with the history syllabus for the first two years, planned by the University of Pune. Diverse civilizations, in terms of, their culture, technology and philosophical elements, which evolved, are studied by the students.

Based on this study, the students are asked to design a gateway to a historical site of a chosen civilization, and a memento, both having their design roots in the preferred precedent. A critical judgment of culture, technology and philosophy, forms the reference to the design.

The design assignment has its rudiments in the Pre-Columbian Civilization. The student has designed, a gateway, influenced by the Mayan Pyramid and the astronomical calendar for the memento. Adequate know how on the form, construction techniques and the philosophy, has been explored through such historical precedents. It demonstrates, that History can be a Source of Inspiration for Architectural Creativity.

02) Architectural Biographies: The study of biographies can be combined with design exercises, which are completed after the study of the master architect. The student immerses himself in the persona and the design vocabulary of the architect to produce a building, or an element, as if he were the master. Architect Charles Moore once suggested, that he would not be able to design a building like Kahn even when he was under him. Some great architects like Frank Lloyd Wright, Louis Kahn, and Alvar Alto changed their beliefs and styles, as they advanced in life. In Alto's biography, Schildt establishes that Alto constantly sought kindred people like Gropius, Laszlo, and Moholy-Nagy, from whom he gained. (Schildt–1984)

It is interesting, to note here, that every student is at a nascent stage and their design skills are largely influenced by an idol master architect. This assists the student, to finally find a voice of his own, enriched with an accumulation of experience. The study of the architect's own house would be a paradigm of "biographic spatial "equation. This Channel of Creativity can be rightly called, "In his Master's Shoes".

Design assignments: This assignment can be tackled, as a small element, like a stabile designed in the premises of the building, designed by the master architect. Respect towards the built form of master architect, during the process of design or addressing one's design relating to a context, becomes the keynote of this assignment. The completed design projects of the students can be redesigned, in the light of, the study of design philosophy of any of master architect.

This illustration exhibits, the study of the design philosophy, involving deconstruction and construction, by master architect Daniel Libeskind. This has been furthered, into the design of a stabile, in the same building complex.



The above channels become the **Tangible Channels of Creativity**, with emphasis on structure; focus on materials. It has preference for geometry, that is, a distinct articulation of volume. It also incorporates, study of precedents, in remote and recent past, including modern and post modern movements.

Hence Basic Design, which is the grammar of visual language, has certain rules, regulations and a very significant structure. The exercises are designed for students to understand the principles of visual language and its grammar. These principles are incorporated in architecture and also in building construction.

6.1.2 Faculty Feed back

The Basic design studio serves an important purpose of initiating creativity and thereby appreciation of visual language. The studio is a continuous research, which cuts a window in the mind of the student and enables the teacher to evaluate as well as facilitate the student for higher courses in the succeeding years. Sketching and working with design brief, support visual thinking that is vital to the creative process, during the synthesis phase.

The Qualitative Study includes, the opinions of teachers, with significant teaching experience, in Basic Design, Architectural Design and Building Technology.

The research was undertaken to address the following issues:

- 1) The content of the syllabus of University of Pune.
- 2) Relevance of Basic Design in the syllabus of Architecture.
- 3) Its contribution in enhancing the understanding of Architectural Design and Building Technology.

A Senior Architect and Urban Planner opined that, the content of the syllabus is adequate and also believes that it helps the student, to augment his creative ability. It prompts the process of observation and visual thinking. It also assists, in understanding the language, for describing a form and its relation with space. It plays a significant role in developing a sense of arrangement through 2D and 3D exercises. Such exercises influence architectural projects, like housing complexes, undertaken in future. As the issues involved in complex architectural projects, are multifold, it is possible that, the skills in visual grammar acquired in earlier years, may reduce in substance.

Another two teachers' commented that, the content of syllabus in basic design is adequate. It has been designed, taking into account that, the students come from a predominantly vertical school of thought. Both the teachers have experienced conspicuous influence of 2D-3D extrusion assignment, in Architectural Design especially, improving their spatial perception. They suggested that, assignments on color, light, texture do play a vital role in enhancing the visual quality of an indoor or outdoor space. Assignments based on positive and negative spaces offer the student a better platform in layout of buildings. Product design coursework facilitates comprehending the visual and graphic language, but the visual grammar gets diluted when architectural projects gets complex.

6.2 Quantitative Study

The research is a longitudinal study of the students from BKPS College Of Architecture Pune, India. The statement of marks declared by the University of Pune for three successive batches of students for academic years (2006-07, 2007-08, 2008-2009) in the subjects of Basic Design (BD –II) and Architectural Design (AD-

II) of the Second Year students and Architectural Design (AD-IV) and Building Technology and Materials (BTM-IV) of the same student, when in fourth Year, were used as a base to establish a correlation.

Correlation between Basic Design, Architectural Design and Building Technology

		Correlations					
		ADII	BDII	ADIVS	ADIVP	BTIVP	BTIVS
ADII	Pearson Correlation	1	0.736 ***	0.143 ***	0.376 ***	0.163 ***	0.297 ***
	Sig. (2-tailed)		0.000	0.254	0.002	0.194	0.016
	N	66	66	65	65	65	65
BDII	Pearson Correlation	0.736 ***	1	0.221	0.376 ***	0.059	0.267 ***
	Sig. (2-tailed)	0.000		0.077	0.002	0.643	0.031
	N	66	66	65	65	65	65
ADIVS	Pearson Correlation	0.143	0.221	1	0.284 ***	0.038	0.319 ***
	Sig. (2-tailed)	0.254	0.077		0.022	0.763	0.010
	N	65	65	65	65	65	65
ADIVP	Pearson Correlation	0.376 ***	0.376 ***	0.284 ***	1	0.383 ***	0.52 ***
	Sig. (2-tailed)	0.002	0.002	0.022		0.002	0.000
	N	65	65	65	65	65	65
BTIVP	Pearson Correlation	0.163	0.059	0.038	0.383 ***	1	0.268 *
	Sig. (2-tailed)	0.194	0.643	0.763	0.022		0.031
	N	65	65	65	65	65	65
BTIVS	Pearson Correlation	0.297 *	0.267 *	0.319 **	0.520 **	0.268 *	1 *
	Sig. (2-tailed)	0.016	0.031	0.010	0.000	0.031	
	N	65	65	65	65	65	65

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

7.0 FINDINGS

From the longitudinal study of the above research sample and the dialogue with senior faculty members, the following findings are arrived at.

- 7.1 A very strong relationship between the Second Year Basic Design and Architectural Design was reported. This has been ascertained using Pearson test where a coefficient of 0.736 was achieved. It proves that, students with good understanding of Basic Design are better slated, in their Architectural Design Projects also.
- 7.2 It was observed that, the complexities like services and structural issues of Design program during the fourth year, weakens the principles and elements of visual language. A coefficient of 0.02 was achieved in the Pearson test reinforces the statement. It was observed that students, who were adept with good understanding in construction and materials, excelled in their architectural design. The coefficient of 0.319 achieved using Pearson test establishes the fact.

8.0 CONCLUSION & DISCUSSION

- 8.1 In accordance with acknowledged faculty members, the contents of the syllabus, is substantial. In order to appreciate and apply the visual grammar, it is essential to impart, two years of training in Basic Design. The elements and principles, in design, are required to be introduced, in the first year of Architecture. This experience is elemental for project based assignments conducted in second year, and in the succeeding years.
- 8.2 From the above findings, it is recognized that, the students in the initial years of architecture, are benefitted because Basic design is a part of the syllabi. The assignments developed in Basic design, enable visual thinking and spatial perception in the students. Hence, it is imperative to extend, a comprehensive training in basic design, to equip the student for the further years.

- 8.3 However, in the senior years of Architecture the grammar of visual elements and their principles gets overlooked due to complex structural considerations of the architectural program. This can be overcome by introducing Visual/Graphical Language at the Fourth Year level in the form of an Elective. It would tender a renewed insight into the subject. It is recommended that such an Elective should be made a part of the Architectural design curriculum at the fourth year level too. This would help enhance their spatial perception further.
- 8.4 It can be inferred from the above statistical data, that students with good structural know how, are well-equipped to handle spaces in Architectural Design at the senior level.

Finally, the journey in Basic Design originates with the basic elements and transforms into spatial perception. Everything living perceives space. So,

Everything Living needs Space and Space is Architecture

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