EXPERIENCES OF TEACHING BASIC DESIGN AS FOUNDATION COURSE TO BEGINNERS WITH NO BACKGROUND IN DRAWING SKILLS: A CASE OF ARCHITECTURE DEPARTMENT AT NED UNIVERSITY OF ENGINEERING & TECHNOLOGY

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ABSTRACT

Primary and secondary school education in Pakistan has virtually no component, module or dedicated course to enable students to learn and practice drawing as a skill. However, many aspiring young people join architectural studies and are exposed to challenges that are common in this discipline. The major obstacle is the lack of sufficient background to help in creative thinking and design process. Despite the struggle, a sizable number of students perform well in the Basic Design Studio, which is part of Bachelors of Architecture curriculum in first year studies in Pakistan and later phases of work. This paper deals with the concepts and methods used in training the fresh minds towards architectural realm and explores the commonly found factors responsible for adequate performance and later stages of work in design studios.

The methodology of this research is based on observation and experience gained after conducting basic design studio for couple of years at the Department of Architecture and Planning, NED University of Engineering and Technology, Karachi, Pakistan. In the later part of the research, a survey was conducted to evaluate the course via student feedback in the form of questionnaires, in order to understand the role of Basic Design course in helping students' creative thinking and approach towards design solutions. Lastly, interviews were conducted of various basic design instructors in order to analyse their experience and pedagogy of teaching students who have no background in fine arts studies.

Keywords: Basic design, non-art background, design exercise, design pedagogy

INTRODUCTION

The keystone of architectural education is the basic design studio. "Basic design studio serves an important purpose of initiating creativity and thereby appreciation of art in many forms" (Parashar, 2010). In Pakistan, the eligibility criteria for admission to architecture departments in public sector engineering universities, is based on purely science subjects instead of drawing and sketching skills. 'The Public sector universities attracted students of highest academic merit from all across sections of society irrespective of income brackets and aptitude (Naz, 2011:4). In this setting, exposure of a new realm of art and architecture is an immense challenge, because of the diversified backgrounds of students.

Basic Design Studio, within the curriculum of Bachelors of Architecture (B.Arch.), is an initial step where students are exposed to the terms creativity, observation, imagination and critical thinking. "The key to coming up with creative, innovative ideas is to think without being inhibited. Think unconventionally!" (Salvan, 1999:207). The purpose of the Basic Design Studio is to unlearn and deviate students from the predefined and traditional mind set. It exposes students to the possibilities of re-learning by experiencing, observing and appreciating different art forms that surround them, which they have never acknowledged before joining the B.Arch program as evident through our survey.

Studio teachers act as a driving force in empowering individuals of diverse backgrounds. "Design studio is a social environment where the interaction among students and studio masters is the back bone of design education" (Ledewitz, 1985).The role of design teacher is very subjective. He/she has to deal with different individuals belonging from different ethnicities, races and income groups having different exposures. "The educationalist shall understand the particular background of student, thus bringing the cultural evolution of the student in to the centre of discussion, in order to direct the particular knowledge construction and to understand the particular knowledge transfer" (Munasinghe, 2008:30).

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In the studio the students are familiarized with creative as well as critical thinking which prepares ground for a broader pedagogical tool, thus assists to develop the design concepts of students and enhances their own diversifying design capacities.

The major objectives of this research are:

- To investigate whether Basic Design studio facilitate the students having no background of fine arts studies and lay a foundation for Architectural Design Studio ahead.
- To find out whether Basic Design exercises enhance observation and design capabilities of students.
- To inquire the role of Basic Design in improving visual communication and presentation skills.
- To examine whether brain storming and problem solving strategies are helpful in critical and creative thinking.

This research was initiated with a literature review in order to discuss the said questions related to Basic Design Studio within a theoretical framework. Secondly Basic Design curriculum at the Department of Architecture and Planning NED University, Karachi, Pakistan, was studied in order to relate the reviewed literature with the current practice. Later on quantitative research approach was adhered to in the form of field survey and interviews to expedite the role of Basic Design Studio in Architectural Studies. For this purpose a questionnaire was floated among students and academicians to investigate the aforementioned queries. Lastly, survey findings were discussed and analysed in order to deliberate the research questions and generate a set of conclusions.

Basic Design Pedagogy

Basic Design is the first encounter of the students with design. This course is highly subjective and its broader spectrum is to open up students' mind. "There is an experiential learning process in design education within the studio environment from the very beginning to the end of any design problem. So, it is hypothesised that different stages of design studio learning require different learning styles" (Demirbas and Demirkan, 2003). The teaching methodology of basic design studio is to accelerate curiosity and anticipation of what is being asked. It is about a journey from unknown to known. In order to make students independent learner, they are engaged to think and ask questions. In general practice tutors often tell students of design solutions instead of preparing grounds for them to develop their own design options. This kind of studio teaching does not facilitate students to nurture their creative and critical thinking, rather just replicates the pre-defined solutions of the trainer. "In the conventional sense and application, the design studio has become a process of knowledge transfer without new knowledge construction, thus becoming as threatening as a cloning process" (Munasinghe, 2008:32). "Creativity needs a "positive attitude". So don't dismiss your own or another's ideas too quickly. Articulate them listen to them fully and if possible add other ideas to them" (Salvan, 1999:206).

Basic design studio is actually an experimental lab where students learn by doing and generally by using trial and error approach. Students are encouraged to come up with unique and distinctive but unified ideas. "Order without diversity can result in monotony or boredom; diversity without order can produce chaos. A sense of unity with variety is the ideal" (Ching, 1996:320). The most important part of the studio is that exercises are not always result oriented, process of the design and composition are equally significant. The aim of the assignments is to enhance their skills and design aptitude. Designing basic exercises in itself is a big challenge and in this global world, where everything is on finger tips, have made it even more puzzling. Daily and weekly tasks are designed ranging from the simpler to more advance level in order to foster the capabilities of student in architectural domain. Over the years of experience it is concluded that every year there is a new set of students having different psyche, attitudes and challenges. The strengths and weaknesses of one class are different from the other, thus, needed to be dealt accordingly in order to enrich their capacities. For this purpose the mode and mediums of each exercise kept different in order to:

- Avoid monotony, repetition and cloning of ideas from the previous batches.
- To bring innovation and versatility to the course.
- To intact the 'challenging' aspect of the exercises i-e experiencing mind-boggling and brain-storming stage.
- To stimulate, anticipate and motivate the trainers to accept and prepare for new challenges.

Basic Design Studio at the Department of Architecture and Planning NED UET

Basic Design course at the Department of Architecture and Planning NED UET is divided into two semesters. During spring, this studio course AR 101 develops an attitude towards problem solution through different expressions, intuition, creative ideas and concepts in two dimensional graphical forms. Basic elements (such as line, form, shape, pattern, texture, volume, spaces) are introduced to recognize and understand the basic principles of design (such as symmetry, balance, hierarchy, repetition, dominance, rhythm). Students are exposed to the basic mediums, such as pencil, pastels, markers, water/poster colours, collage, mix-media, photography, pen and ink to explore their ideas. Students are asked to keep in mind the visual balance, compositional layout, positive/negative spaces while executing their graphical formation on the sheets.

During the fall semester the studio course extends the competence and understanding gained in spring semester. The studio builds upon the core contents, next higher level of exercises based on three dimensional forms and sculptures. In this semester new mediums are explored for model making exercises i.e. card sheets, grey board, clay, wax, thermo pole, metal wires, wood etc. In the later stage various drawings (plans, elevations and sections) of models are developed in order to enhance the understanding of the architectural drawings.

Basic Design studio is a step by step process which spans over a year. In order to streamline the learning process, Basic Design Studio is divided into following modules:

- Module-I: Brain Storming and Warm up Sessions
- Module-II: Graphical Composition and Visual Perception (Elements and Principles of Design)
- Module-III: Color Exploration – Color Theory
- Module-IV: Design Exploration in 3rd Dimension
- Module-V: Architectural Analysis and Design

Module-I: Brain Storming and Warm up Sessions

The process of creativity and cognitive thinking is initiated through brainstorming sessions. Curiosity and experience of performing unknown tasks enhance the imaginative spirit of the students. In this domain where students appear with varied backgrounds and no drawing and sketching skills, initial brainstorming and warm up exercises play a vital role to lay a foundation for the proceeding tasks. These exercises stimulate the mind to opt for more imaginative and innovative options, thus helps in awakening the intellect of students. Table-1 lists down a few initial brain storming exercises with their outcomes (Figures 1 and 2).

S. No.	Exercise	Outcome
1.	Free hand lines (Horizontal, vertical and diagonal) on 20”x30” sheet (Figure 1).	This exercise helps in building up the confidence to draw straight lines without using tools. It also eliminates the fear of holding pencil and drawing on large sheets.
2.	Stage 1: Composition of Free hand 2”x2” squares on 20”x30” sheet	Stage 1: This exercise helps in developing the sense of scale and proportion since students are not allowed to use any measuring tool.
	Stage 2: Title the composition	Stage 2: This part enhances the cognitive thinking while summarizing the whole composition in a single title.
3.	Un-orthodox drawing: A graphical composition by using un-conventional and non-generic mediums of drawing (Figure 2)	This exercise stimulates the thinking process and encourages students to reflect other than the persisting norms.

Table 1: Few initial brain storming exercises and outcomes

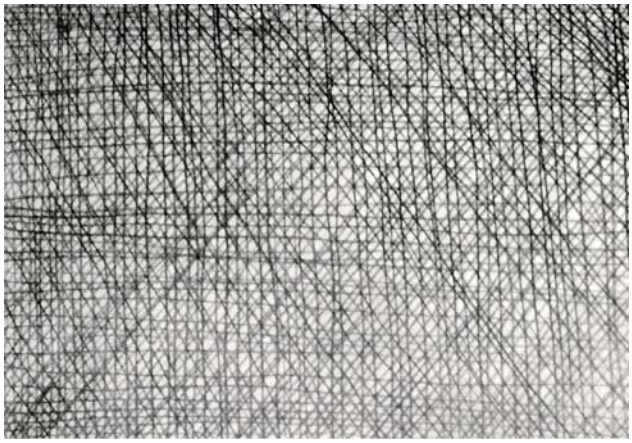

Figure 1: Initial warm-up exercise, lines.

Figure 2: Brain-storming exercise: Exploration of un-orthodox materials.

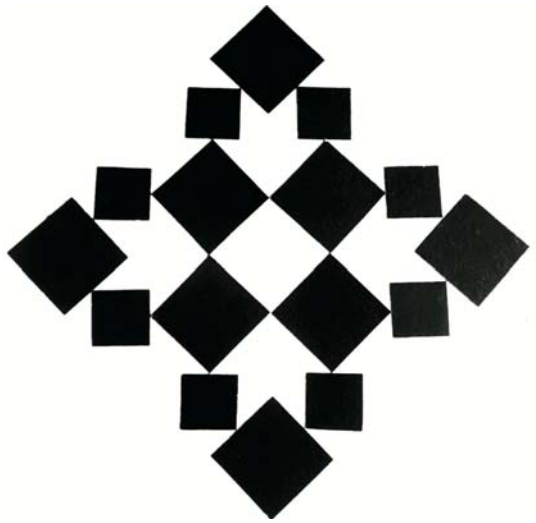

Figure 3: Elements and Principles of Design: Bi-Axial Symmetry.

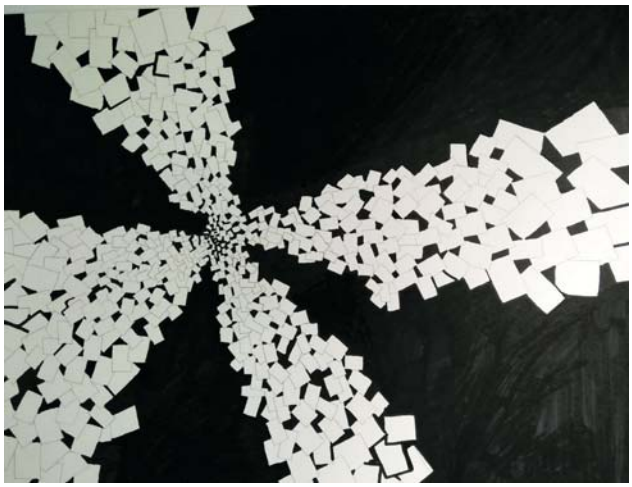

Figure 4: Graphical Composition: Focal Point

Figure 5: Graphical Composition: Rhythm, Harmony, Repetition

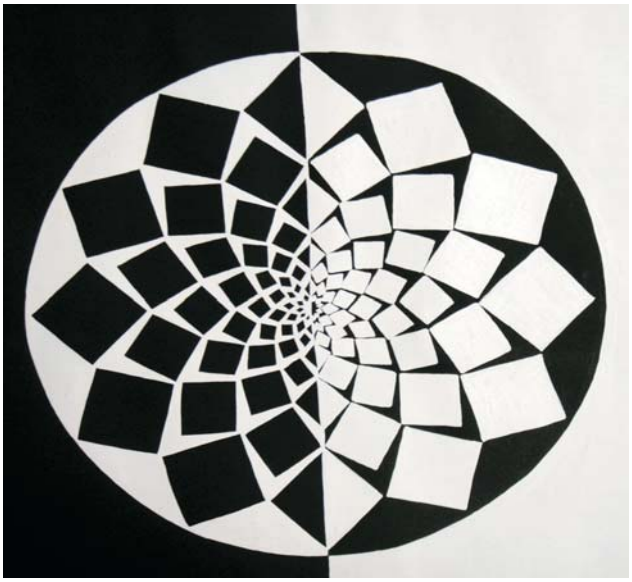

Figure 6: Graphical Composition: Interdependence

Module II: Graphical Composition and Visual Perception (Elements and Principles of Design)

This module comprises of understanding of elements (line, shape, forms, colors, textures) and principles (symmetry, asymmetry, focal point, rhythm, repetition, and hierarchy) of design (Figures 3 to 6). This module is very significant not only in Basic Design but also in Architectural Design projects. This orients students, where to begin, how to analyse, proceed and justify the design assignments.

Students are asked to produce compositions to achieve assigned design principles with the help of several design elements. They are instructed to use previously gained knowledge in terms of theory and skills to enhance their designs. This module facilitates creative thinking and prepares ground for more rationalized output (Figure 7).

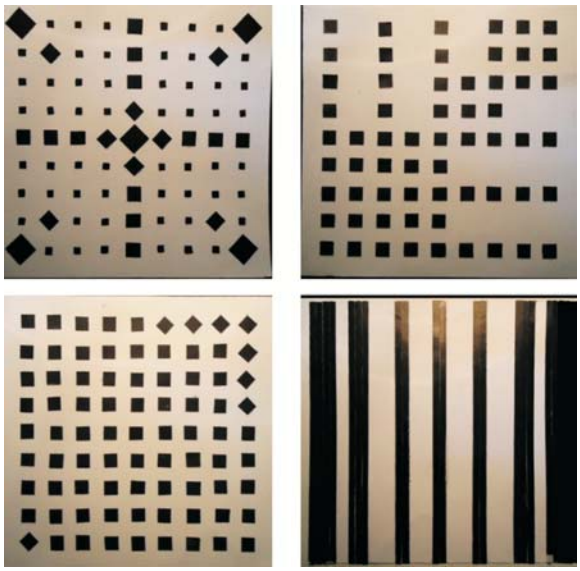

Figure 7: Grids and Squares

Module III: Color Exploration – Color Theory

Colour is a powerful tool to stimulate the feelings and play a vital role to draw or divert the attention of the viewer. Appropriate colour selection make huge difference in overall composition of any design. Colour theory and application knowledge is highly important for students of architecture. Initially it is observed that students generally opt for personal colour preferences in their design exercises regardless of their composition, meaning and psychology. In order to curtail this weakness, one complete module of Basic Design course is designated towards the understanding and application of colours. This module comprises of understanding of basic terminologies, colour theory and psychology. Overall this module helps in improving students' colour choice and related vocabulary (Figures 8 and 9).

Figure 8: Exploration of different color schemes.

Module IV: Design Exploration in 3rd Dimension

The major focus of this module is on 'transformation' of a theory, illustration and two dimensional graphics into three dimensional models, sculptures and life size product design. Figures 10 and 11 illustrate the outcomes of this module. Table-2 documents some of these exercises.

Module V: Architectural Analysis and Design

This last module is a transition from Basic Design to Architectural Design and it deals with basic architectural analysis and small scale design projects. Architectural analysis is a basic tool of understanding the design language, spatial character and material consideration of any building. In this assignment students analyse the specified buildings in terms

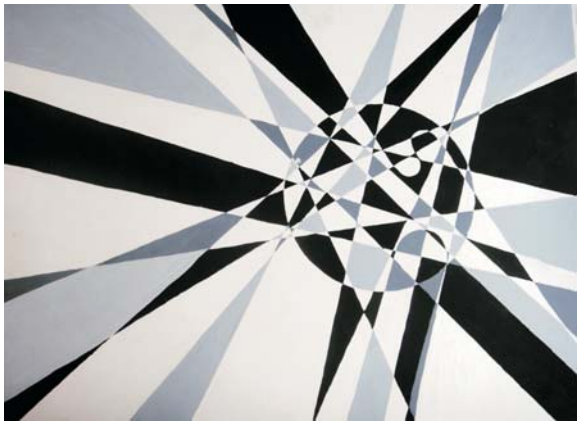

Figure 9: Achromatic color scheme.

of horizontal/ vertical compositions, circulation pattern (both horizontal and vertical), proportionating system, focal point, regulating lines, basic solids/ form of the building, zoning, and materials specification. The aim of this project is to make students understand the documenting, analysing and interpreting phase of architecture at a very basic level. They also comprehend various presentation techniques of architectural analysis in different views (plans, elevations, sections) (Figures 12 - 14).

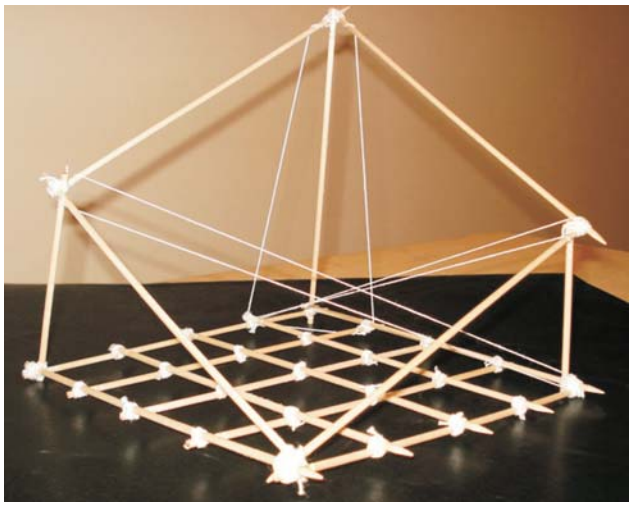

Figure 10: Exploration of design principles in third dimension.

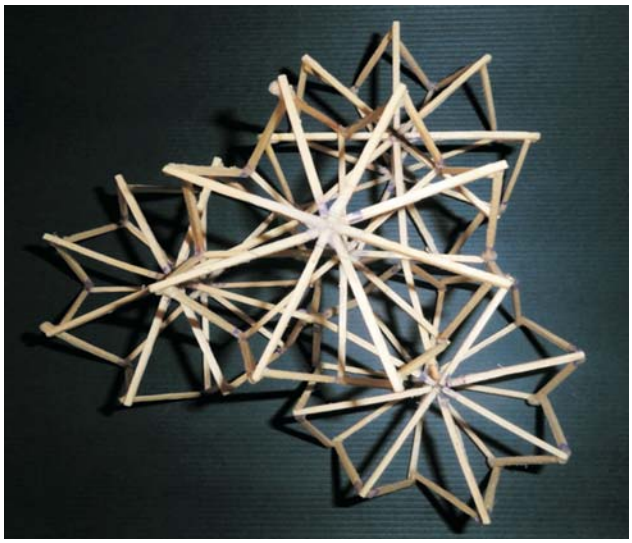

Figure 11: Exploration of finite growth in third dimension.

S. No.	Exercise	Outcome
1.	Sculptural Transformation of Logo: Stage 1: Formation of logo with the help of initials Stage 2: Designing of corporate style letter head, visiting card, and envelope with the help of logo. Stage 3: Extrusion of logo into three dimensional form	Stage 1 and 2 helps in building up the compositional skills, on the contrary stage 3 facilitates in exploring model making skills with a variety of materials.
2.	Time and space model: a sculpture design on which a ping pong ball can move for 10 seconds	A very exciting and target oriented exercise which stimulates skills in various domains in terms of material selection, stability and aesthetics. This exercise builds an aptitude towards learning by doing (Trial and error approach).
3.	Customizing Art Movements: Transformation of theories and ideas into products cum sculptures	This assignment provided first encounter with practicality and functionality in terms of material selection, anthropometry and stability to create various product design ranging from life size chair to small tableware like, pen holder (Figure 12, 13, 14).

Table 2: Design exploration in 3rd dimension.

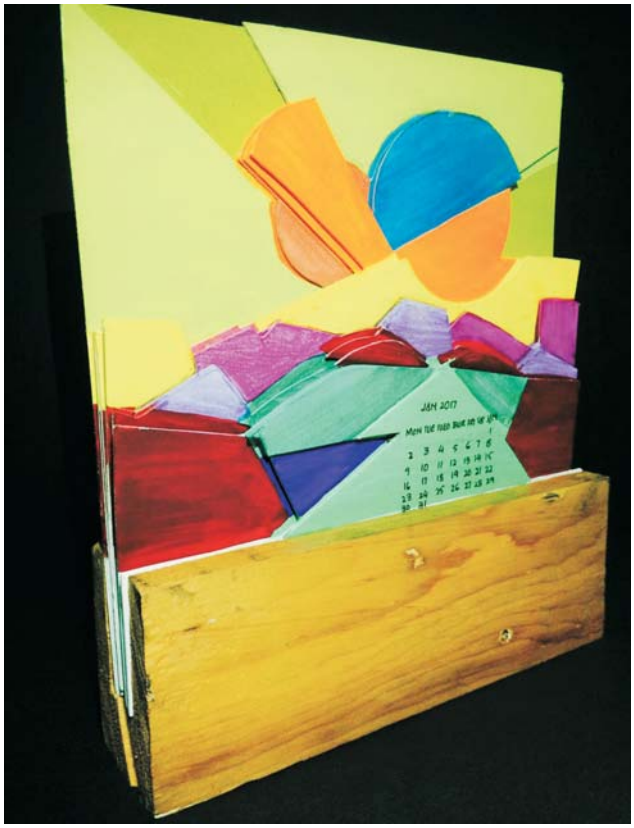

Figure 12: Transformation of art movements into product design: Table calender design based on Cubist Principles.

Figure 13: Pen holder based on Pop Art.

Figure 14: Wall clock based on Pop Art.

In the later stage students are asked to study various master architects individually and then transform their design philosophy, concept and principles into a small scale design project, for example pavilion, bus stop and boundary wall designs (Figures 15 and 16). The insight of this project is to develop creative thinking, design centred problem solution and architectural presentation skills.

Research Findings

In order to understand the role of Basic Design in stimulating the architectural essence, a questionnaire was distributed amongst thirty academicians and hundred students from various batches at DAP NED. Academicians, who replied to the questionnaires, included alumni being involved in academics for last few years. The major agenda of the survey was to get an idea that to what extent the Basic Design course facilitates beginner design students to learn and excel in architectural education.

When the replies of the question regarding the change in design approach after qualifying the course was considered, it was observed that both students (80%) and academicians (75%) responded positively and only 10% students and 15 % academicians negated the idea. About 10% of both thought that it partially had any influence on the design approach (Figure 17).

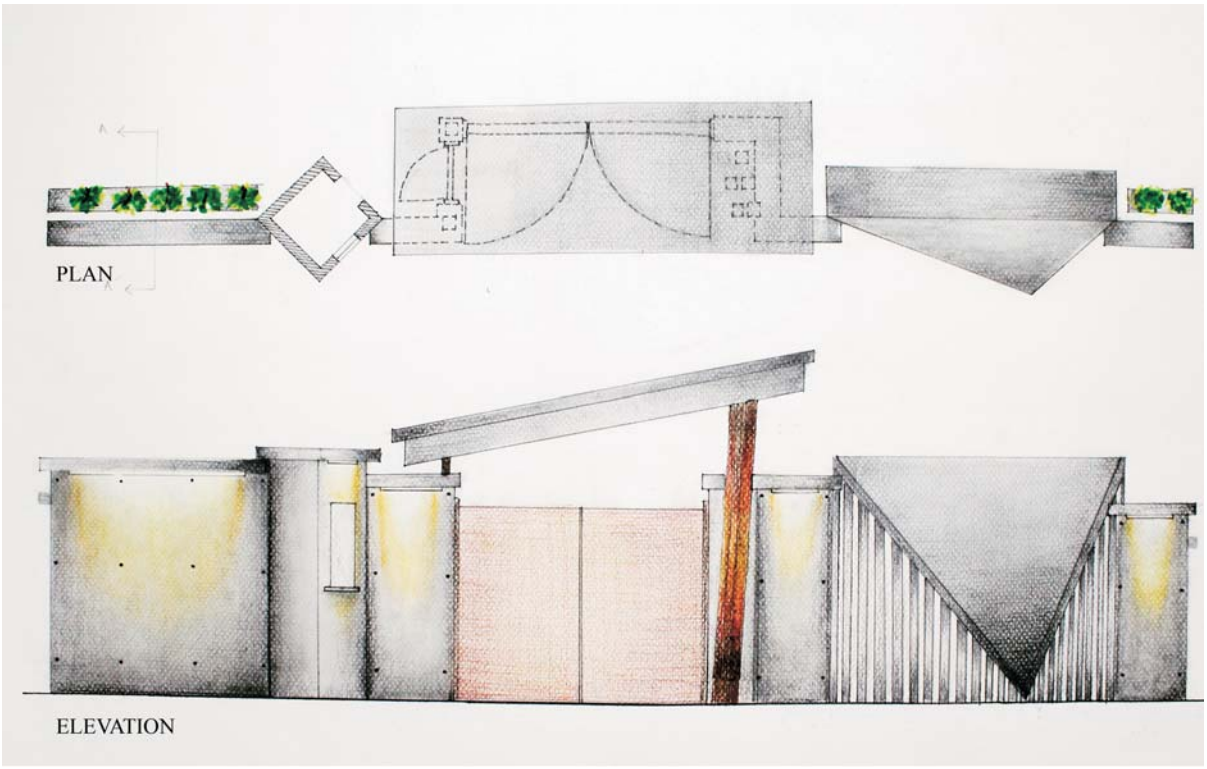

Figure 15: Transition from Basic Design to Architectural Design: Small scale project of a 'Boundary Wall' based on Principles of famous Architect Tadao Ando.

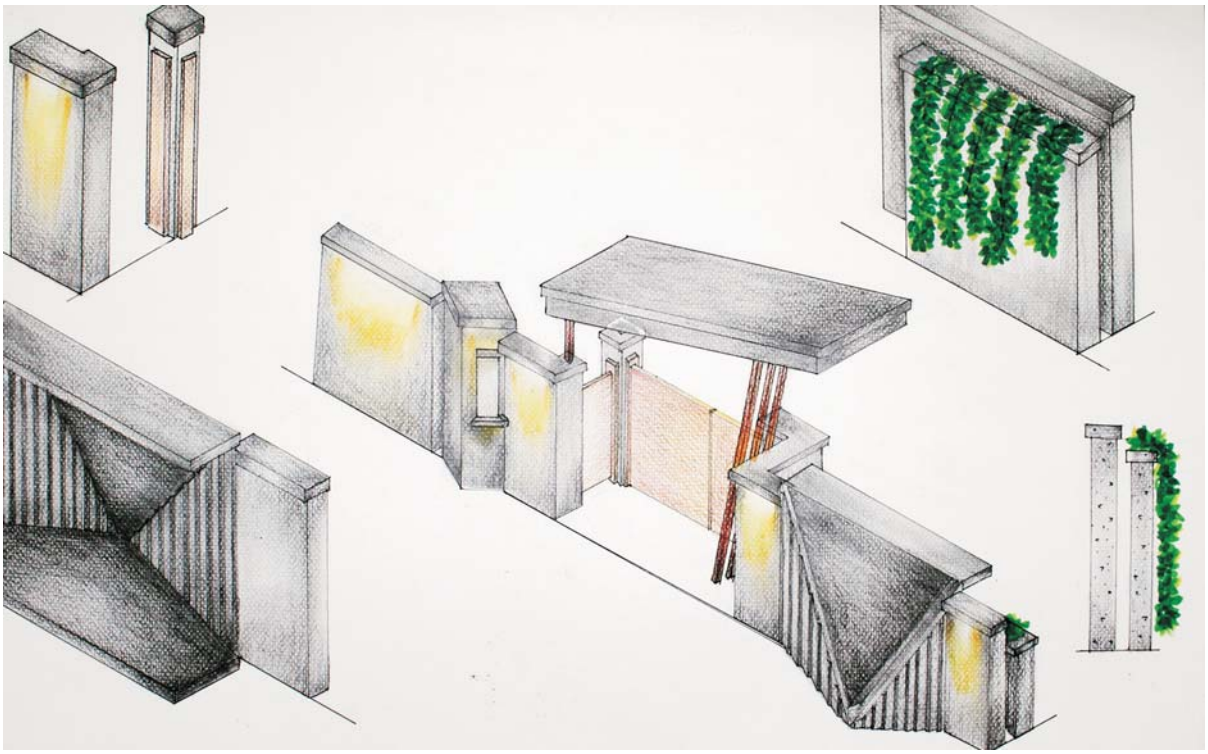

Figure 16: Transition from Basic Design to Architectural Design: Details of 'Boundary Wall' based on principles of Architect Tadao Ando.

Almost all the academicians (95%) agreed with the idea that Basic Design studio plays a significant role in enhancing architectural vocabulary and presentation skills. About 82% students replied in favour of the question. Only 8% students denied the impact and about 5% of them thought that it partially had an effect on their architectural presentation skills (Figure 18).

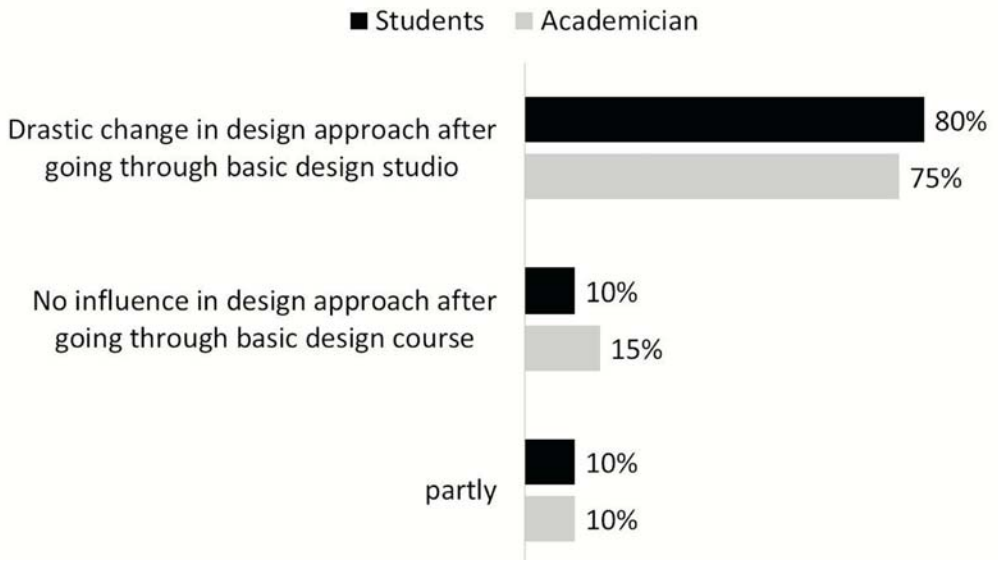

Figure 17: Change in design approach after going through Basic Design Studio.

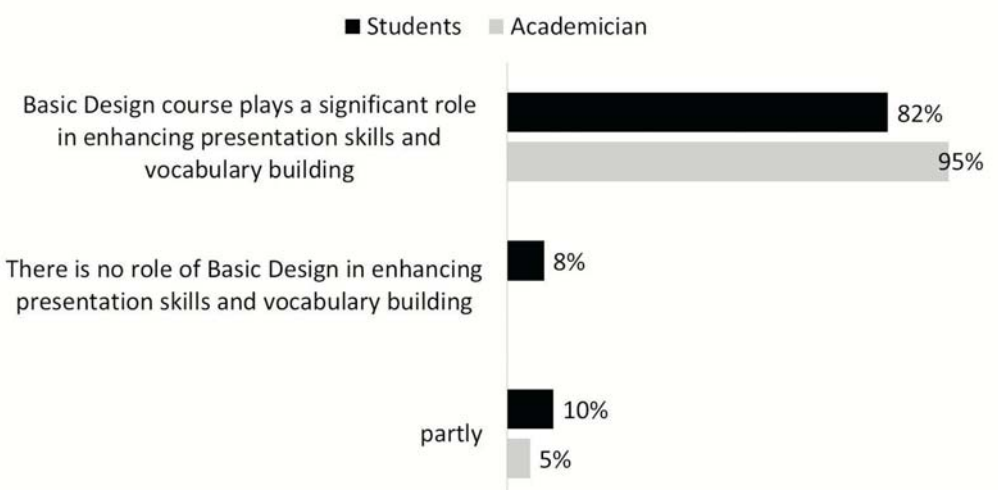

Figure 18: Role of Basic Design course in enchancing presentation skills and vocabulary building (survey feedback).

About 90% academicians and 70% students replied positively when they were asked about the effectiveness of problem solving strategy and brain-storming sessions in creative and critical thinking. 8% of the students contradicted the aforementioned question and about 12% of them were not sure of what was being asked (Figure 19).

During this survey it was also inquired from students and academicians if Basic Design course was responsible for making students realise that Architecture is not the correct field for them and they must move to another discipline, because of brain twisting/ mind boggling exercises which students may find them difficult to grasp. About 80% academician and 60% students agreed with the relationship, whereas 30% of the students and 10% academicians denied the fact. About 10% of both were not sure of what was being asked (Figure 20).

Most of the academicians and students (90% and 78% respectively) believed that there would be an adverse impact of quitting Basic Design course from architectural education. A few among both of them (20% students and 10% academicians) thought of no major impact if Basic Design Studio was removed from the B.Arch curriculum (Figure 21).

Through the survey it was realized that majority of the students at DAP NED belonged to HSC intermediate

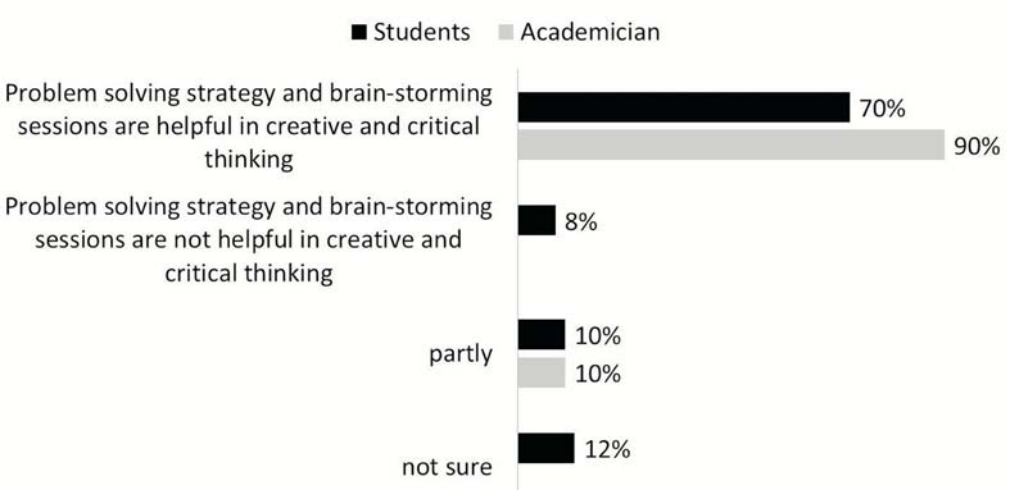

Figure 19: Role of problem solving strategy and brain-storming sessions in cretaive and critical thinking.

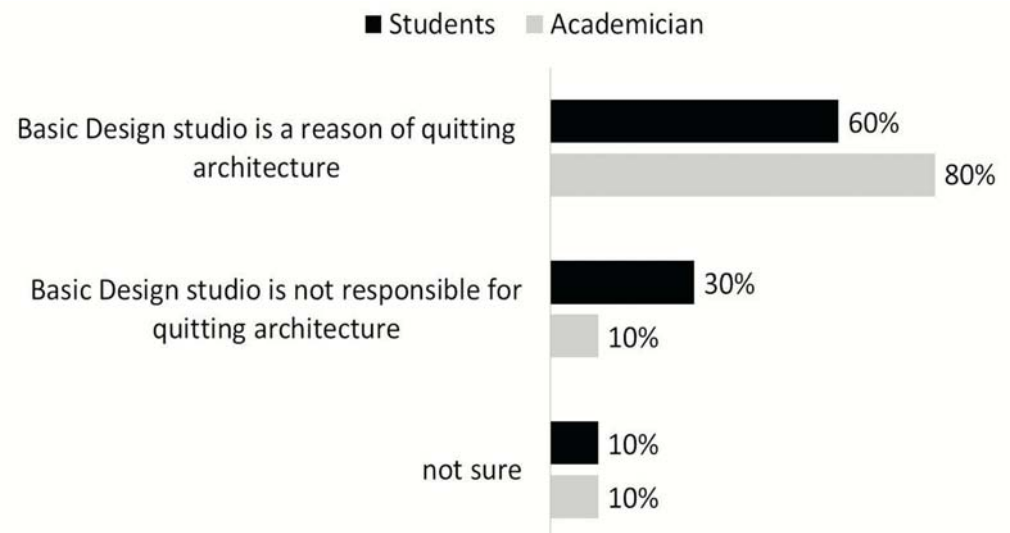

Figure 20: Role of Basic Design Studio in leading to quitting architecture.

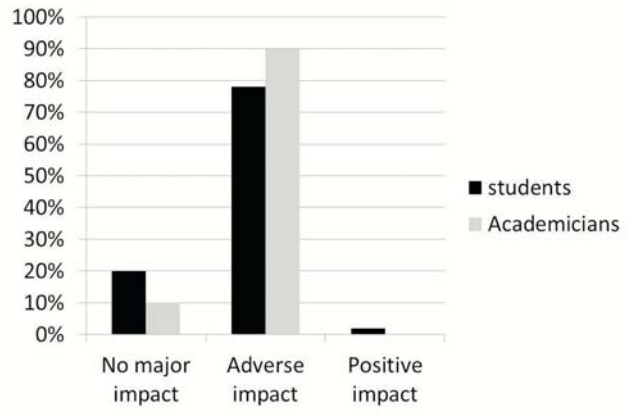

Figure 21: Consequences of omitting Basic Design Studio from architectural curriculum.

background thus, they had non-fine arts backgrounds. On asking, if the Basic Design course acted as a transition from higher secondary education system to architectural design or not, 70% students and 90% academicians replied in the affirmative. On the contrary 20% students were not in favour of the statement. 10% of both categories partially agreed to the question asked (Figure 22).

Most of the students found Basic Design course as an important tool for improving their artistic skills. Basic Design course helped about 73% students in improving their color sense. More than 50% of students gave credit to the course for their improved critical analysis skills, design sense and observation (i.e. 64%, 66% and 73% respectively). Overall 43% of the students found Basic Design as an overall improvement device for all of the above skills (critical analysis, strong observation, improved colour sense and deign sense) (Figure 23).

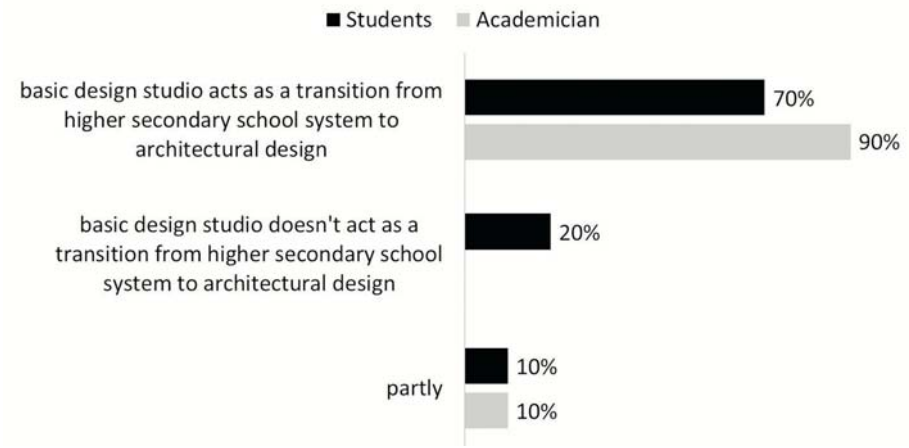

Figure 22: Status of Basic Design Studio as a transition from higher secondary school system to architectural design.

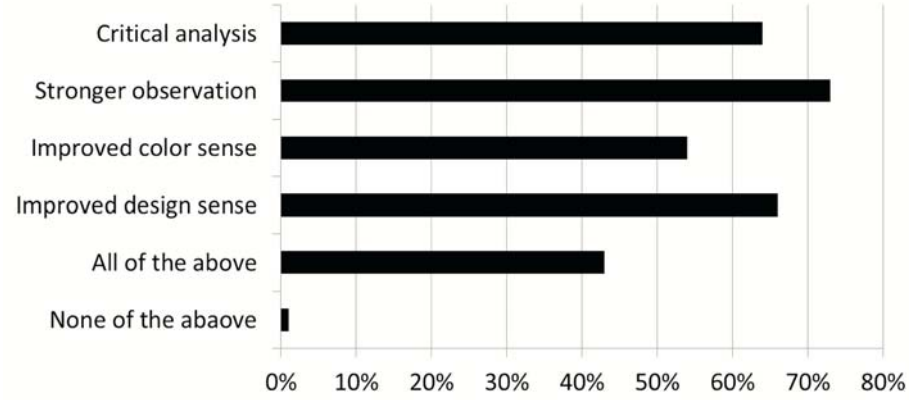

Figure 23: Major changes in the personalities of students after going through Basic Design course.

DISCUSSION AND ANALYSIS

Role of Basic Design Studio in Architectural Education

It is evident from the response of the survey that majority of the students agree with the idea that Basic Design Studio helps in the development of their design thinking process in proceeding years. In this course students are familiarized with design principles for example balance, proportions, articulation, axis; which helps them in moulding their design approach. It stimulates their imagination and creative thinking, thus helps in materializing the concepts and ideas into spaces.

Presentation Skills and Vocabulary Building

Almost all the students and academicians agreed with the fact that Basic Design Studio plays a vital role in enhancing the presentation skills. There are regular training sessions in terms of juries where students present their work and learn from the feedback. During these juries it is reinforced that the students must use architectural vocabulary (which they learn through parallel theory sessions) to express their ideas and concepts.

Problem Solving Strategy and Brainstorming Sessions

Basic Design Studio is quite challenging for students having no drawing and sketching experience. For this purpose problem solving and brain storming sessions are strategized to enhance their skills. It is also obvious through the survey that this strategy is very helpful in opening up minds and enhancing design capabilities.

Reason of Quitting Architectural Studies

During the first semester it is observed that some students quit this discipline. As the survey revealed that Basic Design Studio is one of the reasons for quitting architectural studies. The teaching-learning process of this discipline is self-exploratory, in contrast to text book oriented conventional curriculums. Most of the newly admitted students are un-aware of this fact thus, unable to face the challenges because of its rigorous studio activities.

Impacts of Skipping Basic Design from Architectural Curriculum

The survey findings pointed towards the fact that vast majority of students and academicians accept the fact that there would be an adverse effect if Basic Design course is omitted from the B.Arch curriculum as it stimulates the cognitive thinking which fills the void that persists because of non-art based education. This course is quite challenging, but on the contrary it lays a foundation for Architectural Design Studios.

Role of Basic Design Studio as a Transition towards Architectural Studies

Basic Design Studio is an initial step to enter into architectural realm. It aims to cover up the vacuum and acts as a transition from conventional higher secondary education to Architectural Design (as reflected by the survey findings). This studio liberates the students' mind and orients them to a new paradigm of architecture, through brain storming sessions and self-exploratory tasks. This course includes basic skill sessions, (sketching, modelling, architectural lettering) which are the pre-requisites for Architectural Design Studios ahead. One of the major constitute of Basic Design Studio is project based juries in which students are supposed to defend their work using desgin vocabulary. This practice helps in refining their presentation skills for architectural design projects in the proceeding years.

Major Change in Design Related Capabilities after taking Basic Design Course

According to the survey, students having their first encounter with architectural design admitted that foundation year course (Basic Design) substantially helped them to meet the demands of architectural studios. This course assisted them to build upon their capability for critical analysis, strong observation, sensible colour choice and overall architectural design approach.

CONCLUSION

Basic Design Studio is the first encounter of new comers to architectural studies. The major aim of this studio is to lay a foundation for the students having varied and non-art background (with no drawing and sketching experience).

This paper analyses the role of Basic Design course in introducing a new dimension of study. Overall the Basic Design course and its pedagogical tools are quite unconventional. According to the survey module-wise sequential training of students at DAP-NED-UET sizably helps in combating their weaknesses and inhibition. The course modules are sequentially organized introducing brain storming sessions, which works as an introduction to the course. This module draws a complete picture of overall studio pedagogy in terms of its methodology and deliverables.

At this stage they are introduced to new assessment criteria in the form of jury sessions. This helps in building up the capacities to justify projects in the proceding years. The second module consists of two dimensional exercises, based on elements and principles of design which helps in transmitting architectural design thinking and building up design vocabulary at a very basic level. In the third module colour theory and its application is introduced. This training adds more design diversity and purposeful colour selection in the later design projects. In the fourth module, the design exploration enable students to transform theories, illustration and two dimensional graphics into three dimensional models and sculptures. It enhances their cognitive thinking and model making skills. After completing four pure Basic Design modules, there is a smooth transition towards the final module that is architectural design.

Conclusively, Basic Design pedagogy is very different from other design studios. Exercises are designed after analysing the potentials and weaknesses of the students, which enriches their thinking capacity and visual perception. Overall problem solving strategy is further adopted to inculcate the basic structure of design thinking in students.

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