

3D Model as Design Pedagogy in Architectural Studio: A Case Study of Public Building

Kirthi Chandra

Assistant Professor, Architecture Department, Vaishnavi School of Architecture and Planning, Hyderabad, India

Abstract: This article aims at understanding the intrusion of 3 dimensional models as design pedagogy in architecture studio. Design was highly constituted as a part of 2 dimensional models and later conventional 3 dimensional models were made to present their design. The contemporary trend is considering conventional handmade models and digital models for not only to design and expressing but also to understand the urban and environment factors of the site. Attributes like Urban and Site Context, Topography, Drainage, Vegetation, Visual Connectivity and Environment study of surrounding water bodies were considered. This survey was conducted to find the flexibility of the students in understanding, designing and expressing their designs by means of 3 dimensional models. This survey was further directed showing the balance between the conventional and the digital method. The main barrier in this survey was the students were of 6th Semester and the survey was conducted only for one problem in their design studio. This paper was producing the reliability of students and different design approaches in architectural studio in expressing the design using 3 dimensional models.

Keywords: Conventional 3d model, Design Pedagogy, Architecture Studio and Architecture and Teaching.

I. INTRODUCTION

Today's lifestyle enlightens that every tool of knowledge is to address novel issues by learning to resolve the concern raised by social, technical and scientific problems. There has been many design pedagogy that are oriented towards conventional 3D model. It is the design pedagogy that enables the curriculum to have different by-products resulting in space to be self-dynamic in nature. The present education in the field of architecture is designed to evolve new ways of teaching architecture students. Most of the times it is the by-product, which is the core of the curriculum encouraging conventional handmade models, enhancing the work of students and elevating their knowledge, ideology, and social practices . Lifting up students will evolve in developing teaching culture using 3 dimensional models, ensuing the future architects to consider the culture and acceptable built environment as a design aspect.

In the last decade there has been a great improvement in Computer aided technologies and latest design pedagogies leading to enormous elevation in improving the curriculum of Architectural Studio. This can be observed in the overlapping of computerized 3D modeling of spaces by the conventional 3D modeling in studios . These conventional methods develop the architectural thinking of students over schematic drawings and boost the use of hand on models, resulting in improving the interaction, presentation and submission of project work.

A. Trend in Architectural Studio:

One aspect of sharing the knowledge between the teacher and student is to follow the faculty methodology of designing. In today's standard of living apprenticeship is not an facet in designing as that of criticism where every student or a designer have their open minded on never-ending design problems that can be discussed over the conventional model helping in efficient delivery of

evaluation. These review and lectures should not only be from the faculty or the other student but should also be self. Criticism does include your likes and dislikes where we set a certain frame in our mind. There are 4 different types of critique session given to the students in which they can get the critique by facing the faculty, by group discussion with the faculty, by individual discussions with different faculty and by frequent jury .

These are the types of critics that are majorly dependent on the interaction and presentation for conveying knowledge and are led by making hands on modification. At this point even the model can take part in critics by screening the spot analysis.

B. Role in Practical field:

The transformation from conventional to computerize has to be re-examined as per current design theories and latest methodologies that should serve for publications as well practice. Publications do require having documentation, interpretation in different dimensions and thinking, conceptualization, representation, generation and interaction of ideas attain Projects. This project when uses conventional models craft human interaction as focus unlike digital process, which put together digital design as the centre. It also depends upon the nature and type of interaction which is evaluated on the basis of presenting the problem, generation or interaction, evaluation through critic or analytic and performance delivered .

C. Variant pedagogy in architecture:

Craftsmanship, artist and technical aspect are the three dimensions for every student to grow as a designer. Sight and Aural Pedagogy plays a major role in contemporary approach of learning. The Bauhaus idea of implementing craftsmanship in today's education system is substituted with the different material model and variant applications in computer aided design and drafting software's. Even

today some of its theories relating to the understanding of problem, its theory and practical approach are used as design pedagogy in architectural studio class .

D. Role of Faculty:

The students are facing multiple specialized faculties in the same Design Studio and yet they follow the same pedagogy as if they follow student-teacher relationship. This may sometimes result in replicating the master, irresponsibility or unawareness of the project resulting in the lack of confidence and poor quality work .

E. Faculty and Critics:

The average gap between a faculty and students is of a decade. This entirely changes the perception of digital or technological approach in design problems. The interaction between eye/hand and the critique session is parallel to the digital models . However the criticism between the faculty and the student should be over the topic of design issues and also on the mode of convenience in sharing the design either in 2d or 3d approaches. The core role lies in the flexibility or rigidity of issues.

Design Studio process is a linear aspect but the fluidity or the ability to transform is always a part of conventional and digital design process .

F. Analysis of your design:

Criticism increases the different possibilities in reasoning, use of terminology, self-evaluation, and emerging ideas in new direction. There are basically 9 different types of critique :

1. Individual Critique,
2. Formative Critique,
3. Summative Critique (Final Crits),
4. Peer Critique,
5. Group Critique,
6. Public Critique (External from Industry),
7. Seminar,
8. Written Critique and
9. Panel Discussion.

They do inspire to consent new amendments. These also result in lack of confidence for a student during the Public Critique, Seminar and Panel Discussions for gaining the credits and these can be overwhelm by applying learner centered crits, framed participation of students, positive crits with procedure to attain, regular crits, increasing the usage of model than sheets and finally focusing the process of design rather than the final sheets submitted. The ideas generated by the system are more fruitful when student (Designer) and the Design tools take active participation .

The authentic assessment in architecture and design field cannot be standardized but can be channelized to focus on the proper reasoning, personality development and final presentation of the student .

II. STUDY AREA

A survey is conducted over the 40 students of 2012 batch who are in 6th semester from the Vaishnavi School of Architecture and Planning (Hyderabad) in Architectural Studio as a design problem. The problem given was Civic Center in Dilsukhnagar Area in the heart of Hyderabad District. This Civic center was proposed to provide services in all the municipal authorities like Fire, Water, Electricity, and Police, Income Tax and Health departments.

The students have been to the site and are theoretically and practically aware of the site that was given to them as design problem. In their case study they have completed around 3 different types of Civic Center, which were having the Unique Selling Point. This was further moved forward as to selection of site for designing which were having the key feature of contour.

The Site is proposed by Government and is studied at urban context and site surrounding features. The site area is 16.16 Acres approximately. It has a visual connection with the adjacent Biodiversity Park. The contour signatures represent the level difference of 9 meters with knolls and depressions. The vegetation is a mostly wild thorny shrub uniformly spread in the site. The site is sloped towards the 30 meters wide main road and the slope analysis represent that more than 18% site is above 1:35 and only 58 less than 1:25.

G. Methodology:

Initially students started working on desktop study and case study. Later at the stage of site analysis they have made a working model of the site representing contour signatures, surrounding road network and adjacent land use. Few students used conventional handmade 3 dimensional models and the rest prepared Digital 3 dimensional model for understanding and presenting the site for Critique session.



Fig. 1 Conventional 3D Model of the Site

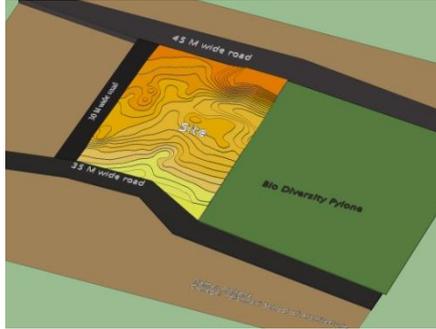


Fig. 2 Digital 3D Model of the Site

III.RESULTS AND DISCUSSIONS

A survey, which was conducted through questionnaire, was showing the percentage of students who are comfortable in sharing their site analysis through different means of 3 dimensional models.

TABLE I RECORDED ANALYSING AND UNDERSTANDING PERCENTAGE BASED ON SURVEY IN THE CLASS FOR 3D MODELING IN DESIGN SESSION.

S.No.	1. Role of Model Making		
	Analysing/ Understanding	Conventional (%)	Digital (%)
1	Urban Context	31.2	68.8
2	Site Context	18.3	82.7
3	Variables in Site:		
	A. Topography	31.2	68.8
	B. Vegetation	61.3	38.7
	C. Visual Connectivity	26.9	73.1
4	Environmental Study of Surrounding water body	61.3	38.7

TABLE II RECORDED PRESENTATION TO PUBLIC PERCENTAGE BASED ON SURVEY IN THE CLASS FOR 3D MODELING IN DESIGN SESSION.

S.No	2. Role of Model Making		
	Presentation to Public	Conventional (%)	Digital (%)
1	Urban Context	39.8	60.2
2	Site Context	65.6	34.4
3	Variables in Site:		
	A. Topography	57	43
	B. Vegetation	74.2	25.8
	C. Visual Connectivity	44	56
4	Environmental Study of Surrounding water body	48.4	51.6

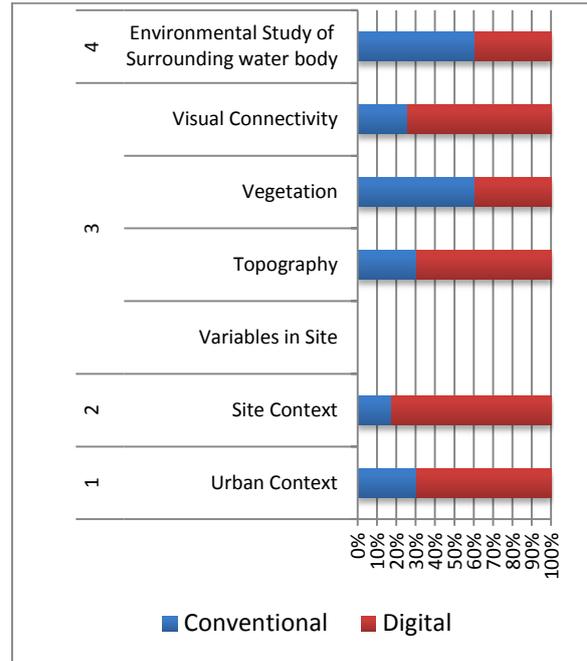


Fig. 3 Bar Diagram of Table I representing the role of Analysing/ Understanding by self through 3d models.

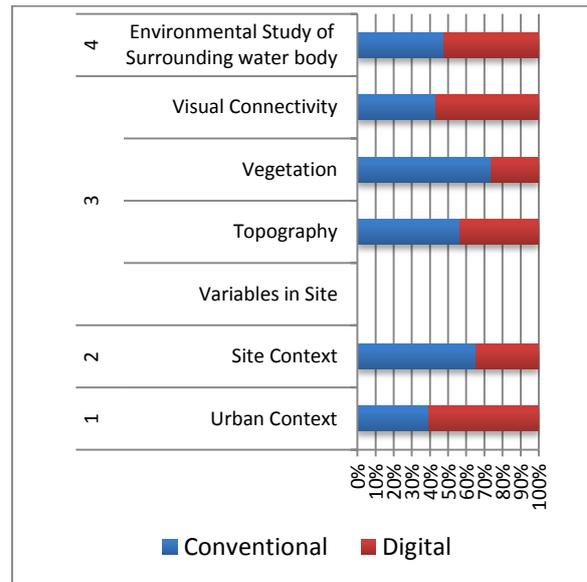


Fig. 4 Bar Diagram of Table II representing the role of presentation through 3d models.

The convenience for Critique Session is recorded in tabular form showing the percentage of flexibility in sharing their design by means of Conventional method and Digital method.

On further analysing the recorded information proves that the individual critique, formative critique and written critique are majorly using conventional method of 3d modeling of Architectural Design where as Peer Critique, Group critique and Seminar are majorly supported by Digital Models.

TABLE III
RECORDED PRESENTATION OF THE ROLE OF CRITIQUE SESSION IN CONVENTIONAL AND DIGITAL MODELS AS PER SURVEY.

2	Comfortable in Interaction	Conventional (%)	Digital (%)
2.a	Individual Critique	69.9	30.1
2.b	Formative Critique	61.3	38.7
2.c	Summative Critique (Final Crits)	48.4	51.6
2.d	Peer Critique	39.8	60.2
2.e	Group Critique	39.8	60.2
2.f	Public Critique (External From Industry)	48.4	51.6
2.g	Seminar	0	100
2.h	Written Critique	61.3	38.7
2.i	Panel Discussion	57	43

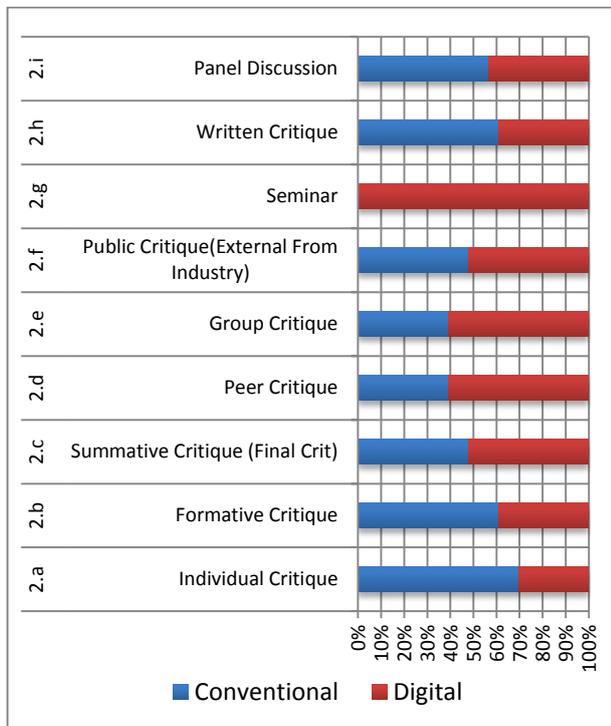


Fig. 5 Bar Diagram of Table III representing role of Critique Session

IV. CONCLUSION

Architecture being such a diverse in education point of view and design pedagogy has many crisscross combinations, which can be resolved through experience over a period of time. With the elevation in the 3d technological aspects the current students are more oriented towards digital modeling. The ratio of the above statistics shows that the Conventional model to Digital model is 46:54.

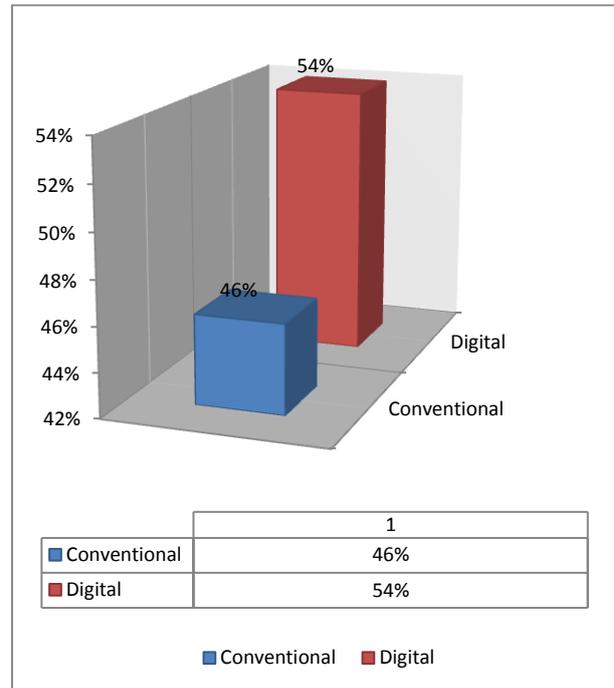


Fig.6 Bar Diagram representing the percentage of Conventional and Digital model during Critique Session

Considering the limitation of Conventional model as rigid and digital model as flexible there will always be a necessary of Conventional Handmade model where the model stands still and our mind works as designer.

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BIOGRAPHY



Kirthi Chandra has obtained his degree of B. Architecture (Landscape) from JNAFAU, Hyderabad and M. Landscape Architecture from SPA, New Delhi. Currently he is working as Assistant Professor at Vaishnavi School of Architecture and Planning, Hyderabad in Architecture Department. He is Registered Architect at COA and ISOLA member. He has been researching on Wetlands since 2010 in the form of Thesis and Dissertation. This research is majorly concentrating on identifying the present-day trend in design pedagogy for architectural studio for Bachelor of Architectural students.