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RESEARCH ARTICLE

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APPLICATION OF SOFTWARE SKILLS_ AN APPURTENANCE TO FUTURISTIC ARCHITECTURAL STUDIOS & PEDAGOGY

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ABSTRACT

Architectural students devote five years in academics to acquire the pieces of knowledge necessary for B.Arch degree in India. The brainstorming studio-works and variety of theories as per the syllabus are purposive in preparing students for their professional endeavors. This explicable academic stratagem seems to be lacking in prepping digital chapter as an appendant to design studio effectually. It's been observed that the students are predominantly becoming reliant on external help for software skills as they have the cognizance of the digital precedence and competitiveness to achieve desirability in practice. This paper analyses the necessity for the integration of software skills in architectural design studios. This way the students won't have to invest in external specialists for the development of the skill which the future demands from them already. When institutes dream to produce ready professionals for the future, letting the students pass out without proper software skills would be negligence from the same side. Developing software skills requires time which is riding on the chariot of knowledge, intelligence, dedication and expert help. This is high time to hold the rope of this chariot and make this a part of our academic calendar from the initial Design assignments. To check the lucidity, a survey has been conducted among the architectural students and the feedbacks were analyzed before concluding.

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INTRODUCTION

The year 1919, when the people were devastated worldwide by the clash of nations, Gropius called all experts of the creative field to reunite "Architects, painters, sculptors, we must all return to crafts!" He knew the need for time to evolve from the scenario as master of remedy and enunciator of the new era. "The ultimate aim of all creative activity is a building! [...] Let us desire, conceive, and create the new building of future together" (Gropius, 1919). To evolve virgin designs rather than customizing inputs of photographic memory, a need was to experiment newly with different materials. The workshop was introduced to teaching methodology as a platform where students will be aided with craft, art and technical skills through experts dedicated to teaching in the same space. "Since then the idea of the <workshop> has spread and transformed into what is world renown today as the architecture studio class and is valid worldwide" (Letita Barbuica, 2013). AutoCAD was introduced as a drafting tool to the Architects for increasing the accuracy and reducing the drafting time, slowly a lot of software companies had dedicated their algorithm in creating easier drafting and 3D modeling tools. With the increase in demands and speed of construction, the challenge for Architects had already left the cage of drafting and 3D modeling.

At present, the computation in architecture is not simply limited to 2D drafting or 3D modeling. The field has extended its wing on realistic rendering, walkthrough, MEP, BIM, specific simulations, parametric solutions and a lot. In reality, the practitioners and researchers are also embracing the extensions for the easiness of their work and new possibilities. For the feasibility of design-functionality, the requirements have increased at every level. The clients do not limit their expectations till working drawings and physical models anymore, they require realistic soft/virtual files to carry, discuss and analyze before they decide. Outside the academic boundaries of conventional teaching methodologies, the world has changed drastically and is updating with multi-directional approaches everyday. Upgradation is not anymore a higher thought, it's the eleventh hour with this necessity now. Whenever the topic of digital work from students comes into the picture for academics, mostly a debate starts regarding the colloidal state of creative design with digital presentation. If we analyze intentions behind the origin and their scope, software was developed for accuracy and the speed of work. Different software has taken different parameters while few are competing on the same page with the target of providing more options of drawing tools, presentations, necessary pieces of information and virtual conditions. It is never the software that decides our design or design methodology, the designer finds their comfort and

determinestheir steps for design presentation. Instead of keeping the mindset that the computation will kill creativity if we simply keep the design steps rigid while up-gradating to the digital process from drafting, a definite change will be visible with a lot of possibilities that are necessary for the future. The goal of this paper is to bring into notice that the academic syllabus and architectural studios require up-gradation. The survey, discussions and analysis are directional to understand the student’s requirements, parameters and mindset towards up-gradation. The paper focuses on the present condition of the academic syllabus, inclination to teach software in different universities of India and student’s demands from their institutes.

Limitations: The paper does not focus on the syllabus formation, faculty development program and specific software in different semesters. The extension of this research will cover the limited parameters in the future.

METHODS

Survey forms and discussions were the methods utilized for this qualitative research. Google survey forms were distributed among all parts of the country in a different type of institutes which includes IITs, NITs, SPAs and other local institutes. 62 responses were collected and analyzed to understand the present scenario. The questionnaires were set in a way that the students and researchers can convey their present condition relative to the practical necessity. The responses were analyzed together without any segregation in institute levels as the intention was to find the solution for everyone. A few of the questions asked in the survey form are enlisted in the table attached below, opportunity was kept to suggest the name of the software which can be attached in academics for specific design developments also. Moreover, specific discussions and interviews with the practitioners and academicians of different parts of the country also clearly stated a lot of challenges, fears and opportunities while thinking about the up-gradating of existing architectural studios. The most important factor is that the students, most of the academicians and practitioners feel the necessity of a change.

RESULTS AND DISCUSSION

Figure 1 shows the percentage of participants in the survey, most of the participants were B.Arch students from various colleges but the research scholars (11.3%) have also given their valuable feedback.

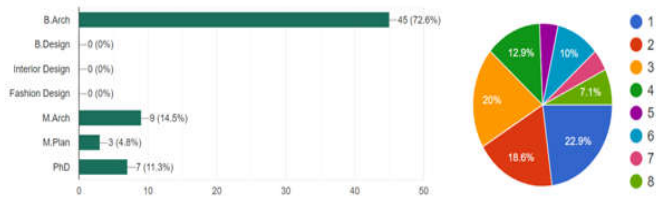


Figure 1. Percentage of Participants

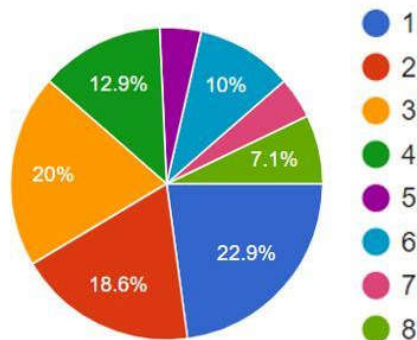


Figure 2. Semesters with Computation

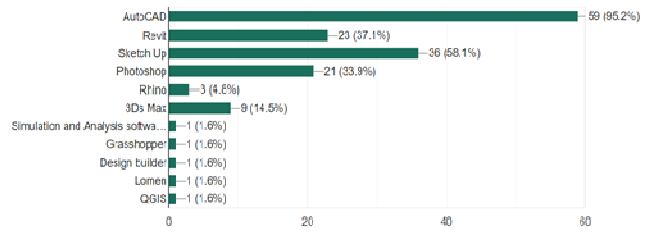


Figure 3. Introduced softwares from institute

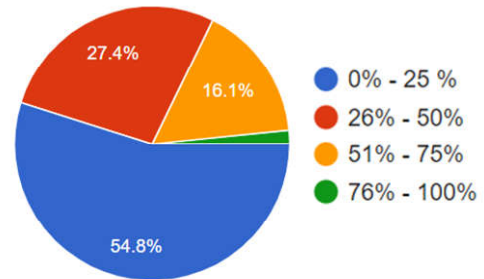


Figure 4. Learning scope from institute

Figure 2 expresses very clearly that most of the colleges (almost 61%) have a maximum of 3 semesters where computation becomes a part of the academics. Figure 3 shows that AutoCAD and SketchUp are the widely introduced software from the institutes while Figure 4 shows that students get to learn less than 25% of necessary software skills in almost 55% of the institutes. Figure 5 states that most of the institutes allow students to work digitally from the 5th semester. Figure 6 shows that the students feel a minimum of 4 to 6 semesters for computational design is required for necessary learning. Figure 7 shows that Revit, 3Ds Max, Photoshop and Rhino are also essential like AutoCAD and SketchUp as per the students. Institutes create a casting track for students with all the necessary inputs for their practical endeavors in the same field. Sometimes, students don’t even realize the need for the subjects which are being taught to them in the classroom. Here, when the students are clear about the need of the future, when they are craving for an opportunity and support, institutes should take the matter seriously without getting more delayed.

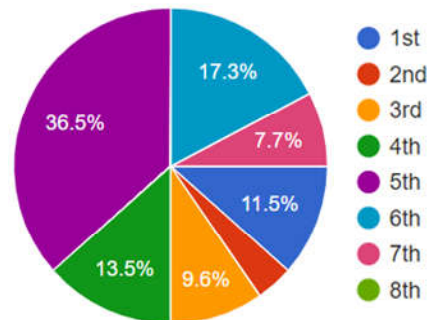


Figure Chart 5. Digital semester starts

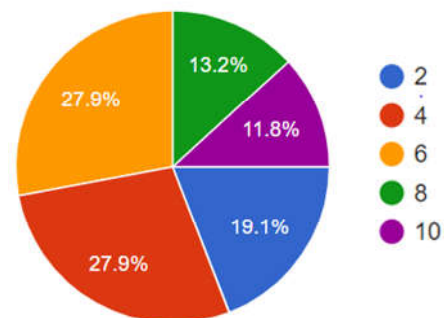


Figure 6. Minimum dedicated semesters required

Table 1. Questionnaires

Sl.	QUESTION	OPTIONS				
1	Name of the Institute	Answer				
2	Do you already have any idea about Computer applications?	YES	NO			
3	No of semesters in which you get Computer Application as the subject	1	2	3	4	More
4	Which are software taught to you from the institute?	AutoCAD	Revit	Sketch Up	Photoshop	3ds Max
5	How much learning of the software you get from the institute?	0% - 25 %	26% - 50%	51% - 75%	76% - 100%	
6	From which semester you are allowed to use Software Skills for your Design problem?	1st	2nd	3rd	4th	Other
7	According to you how many semesters should be dedicated to Computer Application as a subject?	2	4	6	8	10
8	Which software do you feel that the institute should teach you during academic hours?	Answer				

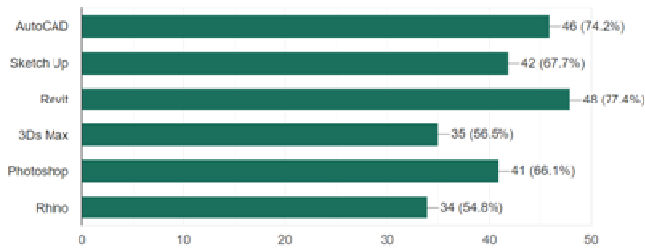


Figure 7. Preferred softwares to be taught

Mostly, there would be almost one-fourth of the students in a class who would be competing for scoring the highest and a similar percentage who would be struggling for passing. The greater number would be the students with average scores and a basic understanding of all subjects taught to them. When it comes to computational knowledge, almost one-fourth of the class would be having their basic software knowledge with average workability when they stand at the edge of preparing internship portfolios. Very few students will be having a confident grip and most of the students in the class will be struggling for basic portfolio development. The reason lies in the ignorance of the fact that software should be given equal value and should be part of major studios from initial semesters. The student who becomes very good in software is assisting their keen interest through external guidance from experts by investing extra money & time. Making the students work in the appropriate method for creative output is one of the major intentions of this course but limiting the required medium of presentation does not help much in the timely directional growth.

CONCLUSION

Adapting with the digital and virtual medium will provide ample benefit to the students and will also contribute to the ethical development of the students from the initial stage.

If the timebound efforts for setting space, maintaining neatness in drafting, preparing & maintaining the drawing tools get reduced, then that time can be utilized for better creativity and detailing. The architects are well known for being creatively calculated towards the future picture, the institutes and the syllabus should also be reflecting the same. Analyzing the present scenario of demands from Architects and the learning that they get from the institutes, I suggest the up-gradation of Architectural studios through the addition of software experts and provision for students to explore software/plugins from the initial stage. The time has again arrived where this is an exigency to consider that, the conventional Architectural studios need the addition of technology and software.

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