Implications and Applications of Research in Architectural Education – Bridging the gap between myth and model

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Abstract - *To enhance learning experience in Architecture and design, there should be learner-centric teaching and education, which is a part of recent attention of architectural education. To implement the learner-centric education, there is a need to identify and study the cognitive patters of learners and the process of learning. It is necessary to identify, what is the learning pattern and mind varieties amongst different learners and how it affect the knowledge gaining. Students of architecture can have better learning experiences, if there is an exposure blend of industry and academics. In architecture there is an urgent need to focus on research based education for better learning and development of dedicated professionals. In addition to theory and practice, there is a need to incorporate research element, which can be helpful to inculcate the research orientation in today's Architects. This review has been presented here with the advantages and implications of research in Architectural education.*

Key Words: Architecture, Education, Research, industry-academia interface, learning by doing

1. INTRODUCTION

Architectural education has been invariably linked to the process of cognitive Research. To impart knowledge a person needs to acquire one. The process of acquiring is continuous and provocative. The more the individual critically analyses the subject the more value it adds to architecture as a profession. Architecture as a realm is very subjective as "there are no wrong answers" and it is all based on individual's perception to judge the conscience. To rationalize the opinion, a mind that enquires and investigates is of utmost requirement.

"The current state of Architecture and Design requires extensive collaboration and an investigate attitude and we continue to develop new research and technologies" – Zaha Hadid

The mythical gap between research and practice is felt by many legendary architects and the notion is still the same. The two hypothetically bridged realms need to be implemented in a single process and worked for the betterment of fraternity as the involvement of research in

design will help to rationalize the need of the architecture and justify its purpose rather than succumbing to modern real estate needs. Architectural theoreticians are largely criticized in our country and perhaps taken as negative criticizers and their analysis is not constructively utilized as the group performing research and design are two separate entities. The process is never intertwined and parallel. The missing link to merge the two entities together is the dire need for the contemporary architecture where you look upon the precedent and infer and analyse the by and future product. The qualities that should be implemented and the ones which should be diluted in the process is not justified because of the lack of inquiring minds and deep research on the specializations. Here, the review presents authors own and experts' views on the implications and applications of research in Architecture education

2. CURRENT STATUS

The fraternity considers research and practice as nearly two sides of the coin but always considers one side when any project is executed. The pre and post analysis is the almost missing concept in Indian Scenario. The thorough understanding of the spatial narratives that the space design involves and the manner in which their research can be productively applied to the building industry is still not considered as a possible task. The project reports are never referred once the project starts and the research becomes a background once the physical architecture takes shape. Not to forget that one can appreciate foreground because the background takes a back. The absence makes the presence felt. The brainstorming process that every designer goes prior to evolution of any seed of the design is "the part of the research" that our scheme performs based on our instincts and investigatory observation. The manner of research is different but the same when put forward as a premise helps to hold on the idea till the execution and not negating the philosophical research.

The premise set up for research is more mythological in all the Architecture schools and not taken as a clear analysis for the evolution of a new thought and new technology. Relating to the process of the past and creating a new future is only

possible if the past is analysed and suitable imprints are carried out. Architecture is not just the building industry but a continuous process of evolution of better and better hierarchy of spaces that serves for the betterment of mankind. Architecture is more or less considered as an autonomous discipline that is considered subjective and can be only argued to the level of perception and does not score on the spectrum of rationalization and relation with the context and past. The notion of architecture being just architecture leads to marginalization of it. The potential of recognizing practice, as a research is one of requirement and the position paper argues on the same topic. The fact that we need to seek before we see. The intention of asking what we want to see is very important as in contemporary context and information technology where knowledge is easily exchangeable and it is one form of economy, the act of seeing and observing has to be pre thought.

2. SIGNIFICANCE OF INTERDISCIPLINARY LEARNING IN ARCHITECTURE

Vitruvius in his first book of architecture mentions the interdisciplinary understanding of various other allied fields for the successful execution and understanding of architecture [1]. The fact that architecture dwells both in Art and Science and it cannot be bifurcated. It becomes important to find precedents and references in both. The creativity when merged with technology gives rise to competent architecture, which is sound in both research and practice. The Vitruvius opinion is not only true for architectural education but also an imperative in Architectural research education too.

"The architect should be equipped with knowledge of many branches of study and various kinds of learning, for it is by his judgement that all work done by the other arts is put to test. This knowledge is the child of practice and theory"- Vitruvius

Historically, the epistemological diversity of architectural research, ranging freely between "hard" and "soft", between fundamental and applied research, has perhaps been a disadvantage or a source of perceived weakness [2]. It should on the contrary be emphasized as a strong point, and supported as such by funding agencies. The intertwining of the practice concerned and reflective and rationale reasoning need to be core for the architectural education. The architectural research community may have been very well blind to this relation, due to the inherited strict distinction between science and art in modern thought [3]. If architectural research is understood as the knowledge

creation, rather than in terms of science or art, it is possible to bridge the unproductive separation between science and art in research and accept that it navigates multiple paradigms or systems of inquiry [4].

Understanding the legendary author Francis D K Ching, and his popular book [5] having detailed and well-crafted architectural documentation and the fact that the templates were made by him as a course material for teaching the subject allotted to him at the Ohio University when he was stationed there as a part time faculty. The grass root understanding of the matter and its deliverance made him the subject matter of discussion till date. Every architecture schools considers the book as a bible and must read for all their architecture students. Similar practice of hand drawing the same templates again and relating with the research of Ching rationally deepens the knowledge and adds to its richness. Being an Architect, I have been doing the same practice as a part of my "daily *riyaaz*" and making new inferences every time the same line is drawn. The line speaks for itself and celebrates its presence.

This experience once forceful, now practice has been a prominent trigger for the desire to enquire and analyse and formulate in the manner of research for my case. Being rooted to a vernacular background, self-learning and experience have always been the best teachers. The inquiring mind of an architect is being practiced by the subconscious activity as nurtured from childhood. The new movements and facets of Architecture brings about new challenges every day and the capability and ability to read the answer in the problem is the outcome of a well-researched mind. The ability to relate and join the dots of the precedents and weave it in ne thread has been the best outcome of any research inquiry. Some qualities that make a good researcher are, (a) to observe consciously, (b) to be analytical in all events-situations, (c) to think logically & critically, (d) to face the problem individually, (e) to use past experience (may be of yours or others), (g) have to get solution, anyhow and, (h) to share the experience without anticipating appreciation or criticism.

The research helps to position the rational mind to positive criticism and give opinion, which is not biased. Constructive criticism is always accepted as a seed to a new germination and towards a more anticipated growth as the outcome is backed with various logical reasons and its supplementary answers justifying the process.

"Designing is a matter of concentration. You go deep into what you want to do. It's about intensive research, really.

The concentration is warm and intimate like the fire inside the Earth- intense but not distorted. You can go to a place- really feels it in your heart. It's actually a beautiful feeling" – Peter Zumthor

The fragments of collective inferences when tied together makes the complete process of design and the same when executed makes the user feel the same journey which the architect has weaved for them. The notion that Architecture speaks for itself and there is no need of the written documentation and research is a debatable because to be able to make architecture speak architect has to first understand what they want their building to speak. For the same, they need qualitative and quantitative process to arrive at the scientific conclusion, which convey the response of architect to the place and problem.

Architectural education being digitalized and the fact that the hand drawn information is minimized; it is very difficult to transfer your thoughts in the programs that one feeds information in. The same logic is applied in that case as the program works on what a person feeds it to but for the fact, that designer needs to know what is to be fed is an outcome of logical reasoning encountered by Research. Similar changes need to be made to Architecture curriculum where research need to be made a mandatory requirement for the evolution of the architecture that the student practices and for the involvement of the student in the various architectural movements and its impacts in architecture.

Architecture being a multidisciplinary realm dwells in many facets with its varied roots pulled to humanities and its evolution. Every qualitative research gives a new dimension to the fraternity as it affects the movement of architecture of that era being influenced by the past and further influencing future Architecture. It has become more important that Research is considered as Practice and Practice backed up with Research. The provocative brain storming session in Architectural Education is an important facet of education now as the same is more perceptive and digitalized and need to be transferred to the classroom activities. The traditional curriculum needs to be impinged with the critical questionnaire of the incentives and technological innovations and interventions and the need to rationalize the need of research in architecture.

3. RESEARCH AND EDUCATION IN ARCHITECTURE

A highly motivated environment that supports research-based learning is the need of architectural curriculum. The traditional classrooms have been questioned for the need of out of the box learning and not being influenced by any impossibility or restrain of thought. Creation of Learner centric environment that actively promotes students to higher education and qualitative and quantitative research. The academicians have a high role in making student to explore the non-traditional and sensitive realms that is the need for Architecture. The understanding of how to transfer the gathered information of research to productive design techniques needs to be filtered by the academicians to the students. Out of box teaching needs to be backed up with long-term goals of improving learning skills of students by academicians who can themselves bridge the gap between Research and Education and transfer it in novel way.

Education system in architecture is often overlooked to be similar as other disciplines, though it is evolved from science and art but it needs to be manicured for its dominating presence. The research/case study that the students perform before evolving the programmatic requirements which eventually helps them to understand precedents are majorly lost in the process when it comes to execution of it as their design. This is a major claim by all academicians that the students do not do justice to the references as the outcome is nowhere like the precedent or seem to be inferred or studied upon. Architectural Education focuses more on quantitative grades and merit based scholarship, which needs to be modified to qualitative research, based creative design. Majority of the times students bring innovative ideas but they are lost in process of execution as there is no backing of research oriented understanding of the idea and the manner in which it needs to be executed to suit their idea. The result of which is the idea remains as idea and is not transferred to the design.

Academics believe that research and theory is one of "symbiosis", "mutuality" and "synergy", especially when researcher's activity is increased in quantity and quality [6]. They reveal that lecturer's research activity enhances knowledge currency; credibility; competence in supervision; motivation; and, salience [7].

The very prominent studio culture in Architectural education values project appearance instead of the actual design process. The creditability of project appearance is also to the fact that the designs are now referred as exhibits and less for the matter of understanding. The spectacular moment is not only related to the urban design but in design and architecture as a matter of outcome also. The rule of aesthetics is being applied in the product rather than the sensibility of the spatial qualities and making the product

overall beautiful both functionally and aesthetically. The advancement in Architecture understood with research and implementation also has many advantages to both the sides of the coin (management and the academician) as the two-way link as described by Rowland (1996). Research improves quality of university teaching while student's understanding and work can contribute to lecturer's research [8].

Criticisms are mostly cantered on the observation that students show no interest in the design process and tend to focus on form making. As a result, efforts to teach design methods and to restore the balance between creativity and rationality in the design process have failed [9]. The reason is related to the difficulties associated with the implicit nature of conventional design methods. These difficulties, which are common in architecture schools, include the lack of a clearly defined design methodology and the misunderstood role of the systematic approach to design in the studio. The implementation of research and theory is long term effort as continuous motivation, correct approach, inquiring and rationale mind, ability to ask correct questions leads to a qualitative research. The implication and applications of the same have to be well programmed and framed by the academician to transfer the knowledge.

The basic qualities of enquiring mind as listed before in the position paper can be related to the many facets of research development as follows:

The basic steps of research resembles with practiced qualities:

(a) Do observe consciously: Identifying Research Question(s)

(b) Be analyst in all events-situations: Compilation & analysis of Data

(c) Think logically & critically: Methods of Research

(d) Face the problem individually: Personal Involvement

(E) Use past experience (may be of yours or others): Literature Survey

(g) Have to get solution, anyhow: Should reach to societal use

(h) To share the experience without anticipating appreciation or criticism: Publish

The above mentioned could be understood as the principles of Architectural research derivatives. The practice of Architectural research involves a continuous process of intertwining systems of working which involves the above mentioned stages. Identifying the research area and asking correct questions for the same is very important to get relatable answers. Else, the information collected will only be a data collection and further it becomes difficult to channelize information and infer from the data and make it to usable knowledge. Compilation and collection needs sorting and briefing of data, further to be understood as a catalyst to new derivatives and further involve the person to evolve with their own research philosophies and methods of execution of the research process. A back and forth process is required which helps to focus on the content of the research area and do justice to the project. The literature survey helps to identify the similar problems and solutions adopted by other researchers and methods used by them to be procured as tools for research methodology.

The final outcome of the research as mentioned above is the relation between practice and research and the fact that the research could be put to use.

3. CONCLUSION

The effective strategy for implication and application of Research into Architectural practice and theory needs to be mentored and drafted for the proposal of merging the two very important aspects of Architecture. The position paper features to integrate the gap between research and teaching and take it as a process, helpful and benefitting both the University and Students.

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