



COMPARITIVE ANALYSIS OF EXPERIMENTAL ARCHITECTURE SCHOOL MODELS- ÉCOLE DE BEAUX ARTS, BAUHAUS AND TALIESIN SCHOOL OF ARCHITECTURE

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Abstract : The role of an architect is key in creating a sustainable and liveable built environment. Great designs require great minds to be at work from the start. There have been experimental teaching processes in the past which brought to the world some great minds in the building industry. But as architecture becomes homogenous day by day due to extensive intermixing and exchange of modern ideas, the teaching process is becoming obsolete. This paper is focused on a comparative analysis of experimental architecture school models- École de Beaux-Arts, Bauhaus, and the School of Architecture, Taliesin. It starts with an introduction of teaching methods in the schools, culminating in a summary table of the analysis. The comparative analysis is based on online journals study, website research, and books related to architecture pedagogy and teaching methods in architecture schools. The method followed in the research paper is a primary method of data collection in the form of case studies of two schools in North India- Chandigarh College of Architecture and IKG PTU, to understand the ground reality of architecture schools. The findings depict that even though a hint of experimentality is seen in architecture schools but there is a gap in the curriculum and teaching methods that need to be addressed through a holistic teaching method.

Index Terms - Architecture education, pedagogy, teaching methods, teaching architecture, curriculum, Bauhaus, Taliesin, Ecole de Beaux Arts.

I. INTRODUCTION

The roots of a successful architect lie in the practical knowledge gained. The analytical skills and the critical thinking process of any architect need to be able to respond to globalization effectively. Answers in architecture are not ready-made answers available but are more complex, include diverse bodies of knowledge and are different for each problem/ challenge. It is important to address that design is indeed a complex in which we need to express ideas and concepts through forms. For a process this complex, the teaching pedagogy needs to be more than just presentations and lectures. It needs to move forward concurrently with technologies and globalization.

Some of the most famous architecture teaching models setup in the past like the Bauhaus or the School of architecture at Taliesin were not only revolutionary models but also influenced the architecture and education today. École de Beaux Arts focused on keeping alive the classical architecture and heritage. Bauhaus brought in modern simple living design while Taliesin trained architects to think deeper for the future. These three examples are the most influential architecture pedagogies, but do they hold relevance with the ever-expanding modern technological world? Is there a gap between teaching of architecture and professional practice? Does our current architecture education system require changes?

II. RESEARCH METHODOLOGY

The method of research followed was a critical analysis of the teaching pedagogies at École de Beaux Arts, Bauhaus and the Architecture School at Taliesin. It was a comprehensive study through journals, online websites and books and a comparison of all three school models in terms of teaching system, positive features and limitations.

Moving forward, it was important to understand the ground reality of architecture schools in India. Hence, there are two case studies of north Indian architecture schools- Chandigarh College of Architecture and IKG PTU, Mohali. Following points were studied for both the colleges and results were noted:

- Subject wise teaching methods
- Teaching pedagogy
- Hour's comparison of lecture-studio-practical work
- Kind of assignments given
- The time given to complete the assignments
- Goals of the assignments
- Overall distribution of workload according to course plan
- Comparison of syllabus
- Student learning outcome
- Studio model

The findings helped us compare the famous architecture models and the ground reality of architecture schools. It also helped figure out the gaps between the study models and architecture practice in general.

III. LITERATURE REVIEW

3.1 École de Beaux Arts

Beaux art is defined as the pedagogical teaching method taught at the École de Beaux Arts Institution. It evokes a tendency towards monumental conception and a culture rooted upon shared values and practices. The progression of architectural styles such as Neo-classicism birthed a revolution which was not only a patron for outright attacks but also an object for unabating mockery because of its continuity and synonymy to great cultural traditions. The Beaux Arts was an influential body in France as well as outside of France, in the Western world by the students as well as the faculty of the school.

The foremost goal of Beaux Arts was to impart education and train architects for administrative positions in the French government responsible for public architecture through a series of competitions. The students were taught to think, create and execute their designs with all detailing. The École des Beaux-Arts was established on August 4, 1819. Beaux arts means 'fine arts' which was also reflected in the school model which focused more on aesthetics, paintings and sculpture than construction or engineering. Two characteristics considered utmost important for an architect were conceptual sketching and presentation drawings.

3.1.1 Teaching System

The pedagogical method at beaux arts was a three level process culminating with one student as the winner of the yearly prize of Grand Prix de Rome. This teaching system can be coined as an elite system of teaching where the winner was appointed as a high ranking government official in the public architecture sector, Académie des Beaux-Arts, the Conseil des Bâtiments Civils (Council of Civil Monuments and Buildings), and academic institutions.

Admission into the École was itself an experiential learning process. "The aspirant à l'École des Beaux-Arts then began preparing for the school's entrance exams, which tested (both on paper and orally) mathematics, descriptive geometry, history (from 1864 on), drawing (from 1867 on), usually of a cast of ornament, and most important architectural design. An aspirant might prepare for the mathematical exams by hiring a tutor, for the architectural exam by making designs using École programs. And he would help older students in the atelier with their drawings." (Chafee, 1977, p.26)

Anyone was eligible to apply and give the entrance exam as many times as he/she wanted until the age of 30. Foreigners could also apply for the school but were not eligible to participate in the Grand Prix de Rome. The curriculum of the school did not have any formal classroom training; rather design competitions were held which put focus on the artistic characteristics of drawings. The practical knowledge was gained in a parallel setup in a job or at the ateliers. All kinds of painters, sculptors, architects and engravers were brought together under this school. The school did not have any tuition fees.

Initial stage of teaching was independent art classes including basics of fine arts. 30 students were selected to move forward for advanced training in the design studios- ateliers. Students had to collect points by winning various competitions which made them eligible for the ultimate prize- Grand Prix de Rome. Only a select few distinguished students made it till the last leg of the École.

3.1.2 Ateliers

Design think studios called 'Ateliers' were an important part of École de Beaux Arts. They were independently setup laboratories around the École campus for teaching, making drawings for competitions and collective learning. Entry to the school was based on competitive examinations, preparation for which was also initiated at the ateliers. Prospective students, enrolled students, academicians, leading architects, everyone worked together. They can also be defined as drafting room since the drawings of the concours were also prepared here.

The ateliers were a very systematic arrangement, consisting of massiers (student elected to be the treasurer, administrator, and supervisor of the group), anciens (old students) and nouveaux (new students). "The anciens and the nouveaux helped one another. The anciens, some of whom would have been in the atelier nearer ten years than five, gave the benefit of their

experience to the nouveaux by criticizing designs... The nouveaux assisted the anciens with presentation drawings: tracing shadows on facades, repeating patterns of ornament, and inking plans.” (Chafee, 1977, p.36)

3.1.3 Concours

Concours is a French word that translates to ‘contests’. The whole concept of École de Beaux Arts was dependant on concours that started as soon as you entered the school. They happened monthly and were called *concours d’émulation* (competitive projects organized monthly) (Chafee, 1977, p.27). Every concours was worth one-two points (valeurs). The next level of school was divided into two classes- First class and Second class. Students who scored a minimum of six valeurs were admitted to the first class and only these students were eligible for the next and final level. Nonetheless, if the students were admitted even in the second class, they received the title of ‘former student of the École des Beaux-Arts’.

Over the years, an annual competition was introduced with gold and silver medal award along with a full scholarship to study at the French Academy at Rome. The number of concours a student could appear in was not limited, only a minimum of 2 concours were required to stay a student at the school.

All architects studying at the school had to pass through monthly obligatory concours of: esquisses (sketches), projets rendus (rendered projects) and éléments analytiques (analytical elements) which were released monthly one after another. Other concours included construction *concours* (stone, iron, wood, and general construction) which were one of the hardest to clear. Students, who were unable to move forward from second class, could easily drop out and start working full-time.

3.1.4 Grand Prix De Rome

Grand Prix de Rome was a six month long competition divided into three intensive time-bound stages. The first stage was conceptual sketch submission. It was 12 hours long and was open to all eligible contestants. 30 students were selected to move on to the second stage. Second stage was another conceptual sketch submission for a complicated architecture design problem. Out of these 30 people, top 8 were finally selected to compete in the third and last stage. The third stage was a full-fledged concours wherein the student was required to submit a preliminary sketch first and then a complete set of drawings for the same project. No deviation was allowed from the preliminary sketch, or it led to elimination.

The ateliers played a very important role at this competition as they were the places where all final drawings were prepared for the competition with the help of juniors and seniors at the atelier. Everyone came together to make the project and the finalist win the competition. The winner of the Grand Prix de Rome was showered with many benefits as he was named the most promising architect of the year, got a full scholarship to study in Rome and was also considered for high ranking French administrative jobs.



Figure 1: Four stages of the École des Beaux Arts, Source: Author

3.1.5 Limitations

École des Beaux Arts was a unit in itself limited to ateliers and concours. The revolutionary style of teaching might have changed the teaching pedagogy, but the syllabus remained limited to winning the competition and not beyond that.

Another limitation seen in the complete course of study and competitions was the jury panel. The judges of the Grand Prix de Rome were old academicians related to the École des Beaux Arts. They wanted to see designs which they had already seen built and were not very open for new ideas. Hence, in order to win the competition, the competitors were compelled to think on lines related to history instead of developing new ideas and concepts.

Ateliers that were considered effective in the 19th century might have lost their credibility with due course of time. Students increased in numbers from twenties to hundreds made them lose their unity and essence.

3.2 Bauhaus

Walter Gropius, the founder of Bauhaus school, wanted to bring together all sorts of craftsmen under one roof- artists, architects and designers. He described that “the ultimate aim of all creative activity is a building!” (Gropius, 1919) and hence the building architecture was placed at the centre of the curriculum. It was essential for every craftsman to have a hold in basic handicrafts, according to Gropius; hence the idea of Bauhaus came into being.

The teaching pedagogy at Bauhaus focused on the relationship between design and production, creating art from the labour of his hand. “Mies van der Rohe explained the rapid change as follows: “The Bauhaus was not an institution with a clear program; it was an idea, and Gropius formulated this idea with great precision. Only an idea spreads so far.” (Authors: Alexandra Griffith Winton, 2007)

Bauhaus school was a short-lived concept but meandered its way into the future through reinterpretations and adaptations. The cultural think tank at that time refrained from looking into the past for inspiration, instead promoted to experiment with different materials and techniques, in a quest to search for something ‘new’. The concept of workshops was introduced to improve the overall skill set, including technical capabilities of students. The amalgamation of technical and artistic skills was the motto Gropius desired to accomplish through Bauhaus. Contradicting the academic way of teaching art through imitation, Bauhaus worked as “a laboratory for on-going experiment”. (Frankel, 2009, p.13)

Bauhaus has this duality: it created a school of thought and a school of ideas, on the one hand, and also, on the other hand, a real tangible school with real walls, classrooms and students, where it was trying to teach the unteachable. As “Art rises above all methods; in itself it cannot be taught”, as Gropius states in the Manifesto. (Barbuica, 2013, p.93)

3.2.1 Preliminary Immersion Course

The first step into Bauhaus was VORKURS or VORLEHRE. It was a compulsory course of six months which was later increased to duration of 1 year with the addition of subjects like basic design workshop and analytical and constructive drawings. The study at Bauhaus was initiated with the study of form and color, composition, material understanding and analysis. It was an immersion into the creative field, hence it was not comprehensive.

3.2.2 Workshops

The second and the most important stage of the Bauhaus teaching cycle were the workshops. Initially, subjects included ceramics, weaving, carpentry, printing, metal, construction and representation. Subjects like photography, film publicity, clay work, plastics, exhibition design, stage design, etc. were added later on in the year 1937. One thing that was commonly seen guiding all these workshops was the principle to work on a grid. It became the framework and the organizational tool marking the basis of wonderful design concepts. Focus was on keeping the design simple that could be pre-fabricated and could also be mass produced.

The teaching methods opted at any architecture school tend to be very specific according to the syllabus and resources of the area. Initial years of teaching carry utmost importance in the development of a future architect. Building the foundations of a student need to be well-planned and conducted in a way that the students get a hint of their duties, powers and learn objectives of their creations. The best interests of students need to be kept in mind and a desire to learn more and work hard needs to be inculcated. “In Weimar, they carried out the teaching as ‘form masters’, together with the ‘work masters’ – trained craftsmen.” (“Teaching at the Bauhaus,” n.d.)

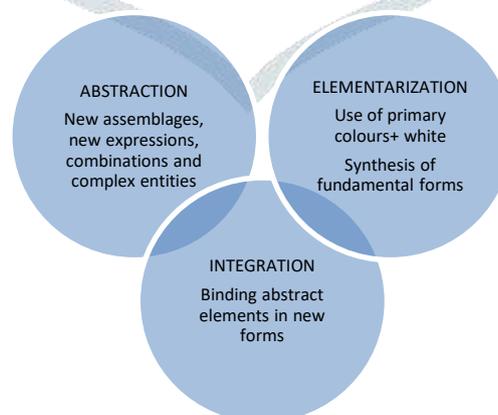


FIGURE 2: Principles of teaching at Bauhaus school, Source: Author

3.3 The School Of Architecture, Taliesin

Frank Lloyd Wright, the founder of the Taliesin fellowship program and The School of Architecture at Wisconsin and Arizona is recognised as “the greatest American architect of all time”. (“Frank Lloyd Wright,” n.d.) Wright developed

architectural concepts like the Prairie style of architecture and Usonian style of houses. His style of designing had major impact on the students/ fellows who came to study at Taliesin. Wright established the Taliesin fellowship with a dream of teaching students with one motto- 'Learning by Doing'.

His philosophy of the fellowship rested on the roots of being a home to the fellows instead of a school or a community. He referred to his fellows as his "comrade apprentices" ("School of architecture," 2019)

He wanted students to come and help, all the while learning to work in a team and become mature architects capable of handling all kinds of problems. Wright was offered a full scholarship by Daniel Burnham, to study at École des Beaux-Arts and also a position in Burnham's firm upon return. But, Wright respectfully declined to offer because he felt that the classical architecture education at the classical education of "the École lacked creativity and was altogether at odds with his vision of modern American architecture." ("Frank Lloyd Wright," n.d.)

Aaron Betsky said, "Here you learn how to break boxes, not make pretty ones." ("Aaron Betsky, dean of the Frank Lloyd Wright School of architecture, lays out Taliesin's legacy in architecture education," n.d.) This quote from the recent Dean of the school completely covers the philosophy of teaching at Taliesin. With limited resources and money at hand, the group of students had to work together to build something with the land, rather than on it.

3.3.1 Campus

There were two campuses- the Taliesin East home, studio and school in Wisconsin and Taliesin west winter home and studio in Scottsdale. The Taliesin west was designed and maintained by the apprentices themselves while working under Wright.

The Taliesin residence is a UNESCO World Heritage site which went under multiple changes and re-configurations according to the requirements of the time. The fellowship program commenced at this property of Frank Lloyd Wright. The Taliesin west was built several years later to commence the second part of the fellowship under Wright- building shelters in the erratic desert land of Arizona responsive to the environment around.

3.3.2 Shelters Project

The shelter project was a hands-on workshop in which the students had to build shelters in the scorching heat of the desert unlike a regular lecture session in an air-conditioned classroom. The ultimate goal of the workshop was to work together to design and build a shelter. A successful architect is not a person who has all the knowledge but, he is the person who knows the key to being a team player, harnessing the strengths and improving the weaknesses of his/her team players to achieve the ultimate goal.

The Taliesin model of teaching is described as the perfect work-life balanced notion. It is a place where there are no boundaries between work and life and a holistic learning environment is created between students and practitioners to learn alike. "Whether one views it as a productive cult or a groundbreaking collaboration, its brand of domesticity is not forgettable." ("Working life: Does Taliesin's collaborative and Pedagogical domesticity suit the 21st century?," 2016) The shelter workshop originally involved students going out in the desert and living there to build shelters while experiencing the hard life.

It accounts for the experiential learning method where students focus on their learning process through application, observation and reflection. The course started with students building their own individual shelters as an experimentative exercise; it converted into a group exercise due to shortage of resources and funds. ("Architecture students from Taliesin west learn survival skills by creating "Little shelters" in the Arizona desert," 2016) Not only does this collaborative exercise incite a sense of belongingness to a project but also lights up a teamwork spark- a very important quality of a great architect.

The working environment is described as very tiring and frustrating at times, "Under the Sonoran sun, it can be nerve breaking... When you glimpse a colleague's happy face of discovery, the joy of seeing things that you thought of actually work out, the most daring, intriguing, wild ideas running smoothly, the light coming out of these faces gives you the greatest feeling possible. Don't expect architects who haven't experienced that to understand it." ("Working life: Does Taliesin's collaborative and Pedagogical domesticity suit the 21st century?," 2016)

It took around 12 weeks to complete the workshop. A very limited number of students enrolled in this course, seeing the harsh working and living conditions. A total of 625 students have graduated till yet from the school. ("Frank Lloyd Wright," n.d.) Over the years, due to requirements of the government and funds debate, the students were moved to only assess already built shelters instead of making new ones. They were called concrete pads in the desert.

3.3.3 Projects of Frank Lloyd Wright

The fellowship program at the school was also a source of workers for Frank Lloyd Wright for his later projects, for example the Falling Water, The Johnson Wax Headquarters and the Guggenheim Museum. Fellows would work on the drafting of drawings and details for these projects, giving them an exposure to marvelous architectural projects along with their studies.

IV. CASE STUDIES

4.1 Case Study 1- Chandigarh College of Architecture

4.1.1 Teaching Methods

The teaching methods opted at the college were an amalgamation of direct instruction and guided instruction. Broadly speaking, two kinds of teaching and learning methods prevail in the institutional structure- didactic and case-based learning methods. (Sonawane, 2016) The didactic approach is a method of teaching where direct transformation of information from teacher to students happens in terms of notes, presentations, lectures, etc.

This method of teaching was prevalent more than the latter in subjects of theory such as Architecture History (Figure-3). Average length of lectures delivered is 1.5-2 hours. A broad division of the 2 hour lecture time includes a) explanation of layout of study, b) presentation and c) assignment introduction/discussion. The structure of the lesson plan seems to indicate a complete control of the teacher on the learning method, from delivering the knowledge to handing out assignments and receiving feedback for the given assignments as well.

Studio subjects such as Architecture Design, Drawing or Building Construction, carry the most weightage in the complete curriculum of the structure out of all the subjects. The structure of the subjects is such that they carry out an independent approach of teaching and learning process, not connected to each other in any way.

A typical studio class is 4 hours long (Arch. Design studio) with a 30-40 minute break in between. The 16 weeks semester is taken to complete one full-fledged design problem, carried out by the student along with some guidance from the teacher. (Figure-4) A scenario of experiential learning amalgamated with case-based learning is observed. (Figure-5) Design studio was conducted twice a week- Tuesdays and Fridays. The structure of the lesson plan on the day of introduction of the design problem was a) Introduction of the 'design problem', b) Site visit (teachers accompanied) and c) doubts session (if any).

Independent coursework and analysis was focused following a broad commentary related to the design problem. The rest of the course structure and submission deadlines are introduced to the students weekly as they proceed further in the design problem.



Figure 3: Lecture hall, CCA; Source: CCA Student



Figure 4: Design Studio, CCA; Source: CCA Student



Figure 5: Design Studio, CCA; Source: CCA Student

Figure 6: Students work displayed in foyer, CCA; Source: Author

4.1.2 Assignments Structure

a) Portfolio

A semester long project- the portfolio was a compilation of relevant data and sketches. The data is a replication/summary of lectures delivered in the class with relevant sketches.

b) Short presentation- group submission

Topics requiring extra detailed information divided among groups of students. The goal was to prepare a two-three A-3 page presentation which was not a marked submission, but was only put up for discussion and review. (Figure: 7)

4.1.3 Shortcomings

The existing pedagogy does not prepare the student for future real-world challenges. A thorough explanation and knowledge distribution about the way to proceed in a design problem lacked, which made students wander around and get distracted from the course of the assignment and unable to finish the assignment on time.

The ultimate goal of a studio is to bring out a successful design with enough knowledge about the subject which seemed lacking as students did not receive enough data.

Theory classes were taught with short-term motives such as completing assignments and getting good marks. Understanding of concepts behind buildings and their history should be encouraged more.

The back and forth shift from online teaching and offline teaching caused chaos in the whole teaching and learning process as well as in the submissions.



Figure 7: Submission of a single page assignment for display in the foyer, CCA; Source: CCA Student

4.2 Case Study-2 IKG PTU, Mohali Campus- II

4.2.1 Teaching Methods

The teaching method followed in this college was interactive lectures. Interactive lectures are a combination of presentations, comparing and filling in lecture notes, correcting errors, compare and contrast exercises which help to understand theory subjects better. Evaluating responses from previous studies and providing reinforcement and positive feedback for mistakes enables to students to stay active and interact more.

This method was seen followed primarily in the History of Architecture course. The lecture starts with a quick summary quiz from the previous lecture to brush up concepts and keep in mind the track of learning. A visual presentation is the most common method of delivering a lecture using didactic methods. The content of the presentation is arranged to stimulate eagerness in student to learn.



Figure: 8 Studio-1, IKGPTU, Mohali; Source: Video by Student

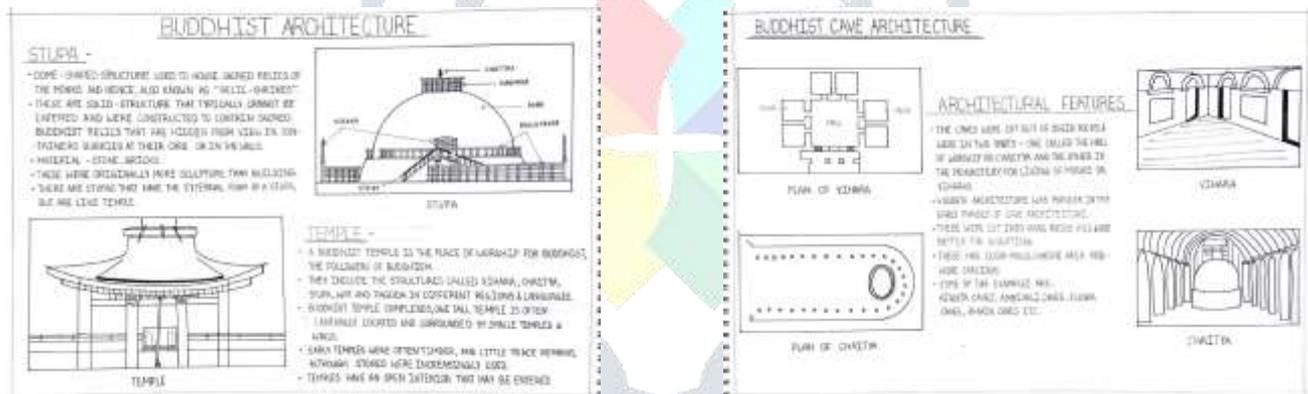


Figure: 9 HOA Subject Portfolio of student, Pages-2-3; Source: IKGPTU Student



Figure: 10 Display room, IKGPTU, Mohali; Source: Video by Student

Average length of the lecture is half hour out of the 2 hours allotted for the lecture time. The rest of the time is dedicated to self-study, doubt clearance and completing assignments in the studio as well. HOA Subject Portfolio of student, Pages-2-3;

Source: IKGPTU Student Giving students the freedom to work on their own enables a sense of actively gaining knowledge through discussions and collaboration.

The studio subjects like Design and BCM (Building Construction and Materials) were more comprehensive. Two days were dedicated to the Design studio, Monday (6 hours) and Thursday (3 hours).

The main class happened on Monday with lectures and submissions. Thursday was a review class day in which students discuss their next week's assignments or any doubts that might come up their way. (Figure: 8)

A Monday class starts with the briefing of the design problem, taking up 35-40 minutes of the class. Students are given a brief of the theme, design elements related to the theme, introduction to the site, the user, requirements of the design and a few references for further studies. The assignment is introduced, which are usually graded on a weekly basis.

The design studio is a laboratory of learning and creating masterpieces. To be able to build something unique, a complete understanding of the past is necessary which is inculcated through a Vernacular Documentation assignment.

This was a three day assignment where students were accompanied to 3 different places each near the college to document historical structures in their vicinity.

The mode of documentation included live sketching, measurements and detailed drawings and photography. The students were able to actively think and connect their experiences to the submission.

4.2.2 Assignments Structure

a) Portfolio

It is a compilation of sketches and additions to the data bank provided by the teacher over the course of one semester. The data needs to be an addition to the lectures shown in the class, without any repetition of data. This increases and improves the knowledge bank. (Figure: 9)

b) Scale Model

This was an individual assignment to understand the proportions and structure of historical structures through replicating them on a scale model displayed in a room collectively with previous models of students. (Figure: 10)

c) Group presentation

It is a presentation of detailed topics chosen randomly in class to prepare presentation and discuss with the class. This way the students get a better understanding of the topic and engaging them in delivering lectures makes the class more interactive.

4.2.3 Shortcomings

Very few students were seen actively participating in the quick summary quiz before the start of the lecture.

A shift from online to offline classes might have caused some disruption in the studio working profile.

There is too much focus on one region, one style of architecture, not giving students the freedom to explore other styles of architecture in their design.

Documentation is a long process which requires a deep understanding of reference points and how to locate things on a larger map. A lack of knowledge on the subject was seen which caused hindrance in the documentation process.

The idea of a historical documentation is a good interpretative way of making students understand but the goal of the assignment was not related to the design studio goals.

V. FINDINGS

5.1 Comparative Analysis- Models and Case Studies

The main objective of the comparative analysis of the schools is to identify the gaps between experimental models which were supposed to shape the future of architecture education. Experimentative teaching methods of the 19th century have had global impact in terms of creative minds at work.

Frank Lloyd Wright is considered to be one of the most influential architects who established a legacy of his philosophies to be continued on. The original idea of creating shelters and living in them in a desert and documenting them had been reduced to only the documentation part to ease the burden on the students over time. The one track education of Taliesin focused on building vernacular sustainable structures far away from metropolitan realities attracted a very minimal percentage of students.

These students knew they were moving towards an out of the box life and not one in which pretty boxes were made. They were placed in an environment of self-introspection where nothing but their ideas and thinking would resolve real life issues. Fellows working under Frank Lloyd Wright also worked on major projects of the architect which gave them real life

experience of architecture work. Living and working together with fellow aspirants made them a hard-working team working on a collective goal of experimental architecture.

In the short-lived timeline of Bauhaus, it has been one very influential school teaching model. The models of teaching and the principle of design spread worldwide through the mentors and students who spread around the world. Bauhaus influence is seen in all facets of design- from the smallest of objects to buildings, influence on former being more prominent.

Bauhaus was defined as a way of living and working, students were taught industrial skills which made them ready for the real world. The various workshops at Bauhaus made students not only skilled but also opened various avenues for the students to explore before entering into the world of designing buildings (which was introduced not until 1927).

Architecture is a multi-faceted, diversely integrated field of innovation and designing. The principle of Bauhaus was to equip the student with skills of arts and crafts that complete architecture. It unified all handicrafts and brought all artists together. Even though the last leg of education at Bauhaus was learning how to design a building, the students preferred to leave the school after the workshops and work in the field as they found themselves fully equipped with the skills they wanted to work with.

École de Beaux Arts was a think tank which had tertiary legs working outside of the school called Ateliers. The Ateliers were responsible to train the student to get into the school, to get through the school and then win the grand prize the school offered. Ateliers were also responsible for intermixing of new students with experienced architects, reflecting the whole concept of a studio in a nutshell.

The Ateliers were inter-dependant. Experienced architects trained new students for the practical field, while the new students helped architects get their on-going projects completed. This ensured that a student was well-versed with concepts and design process before entering the school itself.

TABLE 1: Comparative analysis of three architecture school models, Source: Author

	BAUHAUS, GERMANY	ECOLE DE BEAUX ARTS, FRANCE	SCHOOL OF ARCHITECTURE, TALIESIN
YEAR OF ESTABLISHMENT	April 1, 1919 Building Course- 1927	August 4, 1819	Taliesin East- 1911, Taliesin Fellowship- 1932, Taliesin West- 1937
EXISTENCE TIMELINE	1919-1933	1819-1968	1911- 2021 (UN-RESOLVED CONFLICT)
LOCATION(S)	Europe Weimar, Dessau, Berlin	Europe France, Rome	Usa Arizona, Wisconsin
NOTABLE ARCHITECTS	Walter Gropius, Hannes Meyer, Ludwig Mies Van Der Rohe	Richard Morris Hunt	Frank Lloyd Wright
MAIN TEACHING PRINCIPLE	Unite all arts & crafts together, workshops to develop professional skills in crafts	No regular classroom, competition based study	Learning by doing, build a desert shelter with limited money and materials available locally
NOTABLE PROJECTS	The Bauhaus building, Seagram building, Farnsworth house	National school of fine arts (Paris),	Taliesin west, falling waters, Guggenheim Museum
LIMITATIONS	Building design open only to the best of students who completed the workshops	Old jury resulted in less experimental designs but repetition of designs which jury was familiar with	Teaching horizon was limited, harsh working conditions
ULTIMATE GOAL OF LEARNING	Professional craft skills, fine arts, trained to work in the industry	Compete and win grand prix, Rome for a government job in France	Skills to live, work and study together in a desert, develop effective shelters in harsh conditions
ARCHITECTURE STYLE	Modern, simplicity, new style of architecture to reflect the new era	Classical architecture (French neo-classicism, Greek, Renaissance), ornamentation public buildings	Vernacular, sustainable, influence of Frank Lloyd Wright's principles

	BAUHAUS, GERMANY	ECOLE DE BEAUX ARTS, FRANCE	SCHOOL OF ARCHITECTURE, TALIESIN
FOCUS AREAS	Mass produced cost-effective handicrafts, available to common man	Concept ideation, painting and sculpture	Building a shelter in the desert
NOTES	Promoted modernism, worldwide impact, elite education	Elitist system of education	Learn how to break boxes, not make pretty ones, very select few students came to study

The École model seems to carry quite similarities with today's teaching models. Imitation of existing designs to secure a prize seems similar to today's assignment making process for marks. Only a relationship that seemed to get formed in the Ateliers also disappeared with increasing number of students. The Bauhaus model promoted the teacher-student relationship (master & apprentice) and intended the master to be just a guide in the students' individual journey he is on.

The case studies indeed reveal that the models were kept in mind while the curriculum was designed but with years passing on, the updates on the curriculum haven't been made in sync with the ever-growing technologies of the fast-paced world. Considering the importance built environment holds, re-thinking of how architects are taught and equipped needs to be given equal importance.

When studying theory subjects, the primary mode of delivering lectures was giving presentations, which utilises only one kind of mode of imparting education in a didactic mode, a monologue technique. Studio subjects, where students should be working in the studios over practical projects are given a brief description in the form of verbal/ virtual presentations to work forward. A streamlined process of developing the design through various stages is seen lacking.

Students were interested in subjects that were taught by teachers giving detailed instructions on how to proceed further in a systematic manner. The busy schedule of students includes long working days with little or no time for self-study and interpretation. The classes and workshops take up the whole day of students leaving them with no choice but to complete assignments in a hurry and with the little knowledge they were able to gain in a limited amount of time.

Students dealt with a pressure of rote learning and acquiring inadequate information which along with inadequate time to study made them perform poorly for tests meant to expand their knowledge. It is one habit acquired from pre-university education which needs to change. Creativity is an essential factor of architectural education which needs its time to grow and flourish in the mind of any person.

A lot of knowledge gained by the student depends on the knowledge and experience of a teacher. A teacher can only guide a student properly when they have the required set of skills for the new world of architecture. Understanding the role of teachers in architectural education opens up another avenue of research and caters to the gap in the study.

The political and social issues presently have shown more influence on the current academic front, which tends to overpower the fact that educating and preparing architects for the future is more important than showering energy into unsettling conflicts.

5.2 Who Is A Successful Architect?

To be a good designer, not only does a person need solid skills like drafting and rendering but also needs to have a speculative thinking process to bring together environment, aesthetics and time. He is who possesses analytical and critical thinking skills. An architect is considered successful by the practical knowledge gained over years. The skills acquired in the 5-year architecture degree are the root system of a fully-trained architect. He/she has the following qualities- adaptability to changing environment, quick creative thinking process, ability to effectively address multiple problems and process bodies of knowledge manifold.

5.3 Ways Forward In Architecture Education

The teaching process needs to be well-planned and structured so as to inculcate promotion of best interests of students where they understand their duties and manoeuvre their objects of creation through the cycle of globalization successfully. Architecture field is a dialogue between culture and globalization. For this dialogue to work effectively, information technologies and resources demand an efficacious utilisation along with overcoming all boundaries and difficulties which set in due to multiple factors.

The change necessarily required within the architectural education system lies to shift away from the traditional methods of teaching of lecture delivering and rote learning to developing cerebrating skills, analytical dexterity and creative abilities which are far more essential to read, assess and express diverse bodies of languages.

In every architectural project, the utmost important tool in designing is the ability to creatively look for answers in animate or inanimate objects around you and convert knowledge into practical assessment of the actual problems faced in the

project. Focusing on these skills while imparting education can make a huge difference in prepping future architects in the making today.

To begin understanding the models of architectural teaching established years ago and comprehending them into today's modern world should start from the first stage- conceptual stage, to learn how to express ideas through form. "The ideation process begins when you put deep thought into architectural formal or informal concepts, e.g., finite, infinite; static, dynamic; transparent, opaque; etc., and having mastered them, move on to explore how non-architectural ideas can be translated and transformed into an architectural concept and communicated formally."(Ameri, n.d., p: 09)

The interplay of concept with design form and the crucial analysis in between brings out the desired design outcome in consonance with globalization. The dialogue produced due to globalization brings out an intermixing of cultures from around the world. The marriage of architecture and cultural context, setup in diverse geographical conditions makes this dialogue difficult and hegemonic.

It is important to understand architecture and where it came from, the spatial and material language of the structures, the beliefs and ideologies of the lived experiences of buildings, structures and spaces forming the future knowledge bank of architects to innovate and explore.

5.4 Future Teaching Strategies

As seen in the case studies, most of the design education is carried out independently irrespective of the subjects' correlation with each other. As mentioned, an architect is required to have a blend of attributes to design a homogenous building, which needs a reflection in the teaching process as well. The blended mode of teaching as observed during the pandemic can be a teaching method for subjects relative to it.

As technology overtakes every field of work, its powers can be put to good use in design studies by involving social media platforms like Instagram, online data sharing portals like Pinterest and e-learning platforms to develop skill set according to your interest.

The teaching hours, which are seen to overpower self-study time, can be divided in a manner to promote the best utilisation of precious study hours of students to think and broaden their knowledge spectrum.

A student should not learn to learn, but learn to create. Adapting to changing requirements of globalisation and real-life design problems can be incorporated into design studies.

The teacher centric approach of delivering lectures can be switched to a 'student-centric' learning approach by adapting various teaching methodologies. The subject of various teaching methodologies is another aspect can be studied further.

Incentive approach of teaching can be applied to motivate students for better performance. Rating systems to rate the teaching and learning methods can be used to keep the studies on an informed track at all times and to ensure that students and teachers both are on the same page.

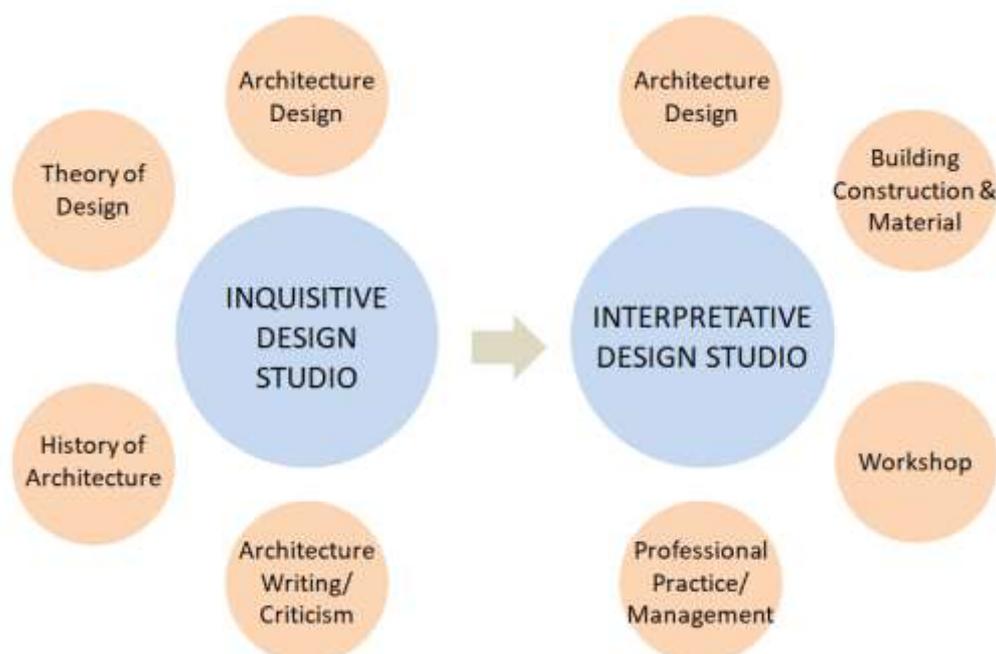


Figure 11: Interpretation of Design Studies; Source: Author

5.4.1 Inquisitive Studio

Subjects involved: Architecture Design, Theory of Design, History of Architecture, Architecture Writing/ Criticism

Setup of this studio evokes the inquisitive nature of young students to deliberately research and interpret history according to their requirements. The main objective is to find the relation between what was already built, the theory behind it and bring out a practical solution to its limitations/ interpret it according to the future. It encourages students to learn different world-views in a systematic manner and design buildings in accordance to spatial constructs.

5.4.2 Interpretative Studio

Subjects involved: Architecture Design, Building Construction & Material, Workshop, Professional Practice/ Management

Once the design theory and conceptualization is understood, it is important to interpret the design in structural and logical terminology. A good architect will always be able to create great concepts, but a great architect is the one who can bring the design to life with the help of various stakeholders involved within the field of architecture like the site engineer, contractor and builders. Working out of their comfort zone to design, analyse and interpret the design problem and branching out the problem into different subject so as to prepare a holistic submission over the course of time. Understanding, but not limiting to cultural and social aspects of local regional design and developing an appreciation for the design process will be the ultimate goal of the studio.

VI. CONCLUSION

Architecture is an inter-related field where all aspects of various subjects come together to design a holistic project/building. This principle needs to reflect in the way of the learning process of a student. Regardless of the subject, students tend to learn more from teachers who give a clear vision to the class, a clear way forward and streamline their thinking process towards the right way. As we discussed about the diverse skill set required, the diverse yet coalesced way of teaching and learning needs to be incorporated in early years of architecture education.

Presenting short-term goals to students of submitting assignments and filling up tons of sheets prepares them to be a draftsman more than an architect. The 19th century teaching models teach us that architecture can be taught in any legible way, but needs to keep the students' benefit at the centre.

Teaching practical skills over piles of knowledge will benefit students over a longer course of time and in the ultimate goal of practising architecture after studies.

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