



Precedent Study: An Approach to Learning about Design Challenges in Architectural Studio Pedagogy

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Abstract: *The Application of precedents in the Instruction of Architecture Studio is an essential but frequently miscalculated component of the architecture curriculum. The Architectural Design process is an ever-evolving phenomenon. Concrete examples help to establish this evolution that includes the detailed study of Precedents. It is found that there is a connection between architectural design studio pedagogy and precedent study by thoroughly analyzing previously published literature. Since the precedents serve as the basis for further research, appropriate solutions are sought to increase relevance and performance. Therefore, Precedent-based instruction is the most effective teaching method in an Architectural design studio. This study has identified a few frequent errors when performing precedent studies, i.e., romanticizing decisions in Precedent Studies, neglecting Context, and shallow appreciation without a systematic way. This study offers potential for further research to devise an appropriate tool to conduct an analytical study of precedents to avoid falsification and non-contextual solutions.*

Key Words: Precedent Study, Architecture Studio, Context, Falsification

Introduction

Built Precedents in Architectural Design are a valuable resource for understanding the Design questions and interpreting queries from existing situations. Precedent study and analysis in a systematic way encourage initial design thoughts and a basis to start innovative and creative work by accessing the essence of its embedded knowledge. In education and practice, creating, developing, and communicating innovative ideas is essential to the Design Process (Fowles 1979). Let alone Architectural Design, in business, arts, and sciences, a creative idea is something that can change the whole situation (Graham 2004, 3). Graham and Bachmann (2004, 454) defined innovation as means of improving something

that 'Already Exists,' and a "Derivative Idea" (working on already existing things by changing them) is among the methods proposed by them for the creation of novel ideas. In computer sciences, too, knowledge from previous examples adds to creativity. Mathematical systems have been developed to extract precedent information (Grover Robert 2018). To name a few, PRECEDENTS (Oxman 1993), EDAT (Akin 2002), and DYNAMO (Heylighen 2007).

Similarly, the use of analogies and metaphors is evident in scientific (Duit, 1991) and other faculties like Architectural studies. Where pre-design stages are systemized by metaphorical and analogical thinking (Wu, 2014; Casakin H. P., 2006; Casakin H., 2011).

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analogies and metaphors may assist in rearranging existing memory to prepare information [\(Shapiro, 1986\)](#). This is how the unfamiliar is appreciated by relating 'unfamiliar to the familiar' in traditional ways of learning [\(Gagné 1970\)](#).

Considering the case of Architectural Design Studio, in particular, the Precedent study involves the inquiry of what has already happened to guide the new decisions. [Eilouti \(2009\)](#) has concluded that the early stages of Design are guided through Precedent information by a particular systematic tactic for extracting embedded knowledge from previously done projects. However, it is essential that how students should extract embedded knowledge from existing examples without falsification and imitation. Traditionally, Pakistan's Architectural Design Studios pedagogy involves a Case Base study/ Precedent study. Nevertheless, instructors' guidance in extracting Precedent knowledge is not thorough and structured. It is rarely found a guided systematic way to conduct case studies. Students use their intuitions according to their capability and previous expertise in the absence of systematic guidance, which sometimes leads to falsification or replication. Consequently, prompted drafts by students are returned by instructors for revisions, leading to inefficiency, ineffective learning, and confusion due to repetitive modifications and a lack of a systematic way of extracting knowledge from Precedents [\(Wu, 2014\)](#).

This research attempts to appreciate the significance of the precedent study and highlights the issues related to conducting it to prevent replication/imitation or falsification. Since the process to design is essential rather than pre-fixed ideology and theory. Therefore, it is important to use the information in a practical way rather than as a theory. As Robert Venturi said, 'It is not an Artist's way of Design to prove their theory, since the buildings that merely express a theory are deductive, that is very dry. So, we work inductively' [\(as quoted in Lawson 2005,61\)](#). Carrying further, [Akin \(2002\)](#) and [Wu \(2014\)](#) argue that insufficient instruction in the design process or the absence

of a systematic way in the studio causes weak design products.

The research methodology includes extensive literature on the importance of precedent studies in general and architectural design studios in particular. Precedents to conduct the precedent study were examined from the annals of history. Specifically, methods and ways of analyzing the precedents from the 18th century onwards are studied.

Literature Review

Architectural design education is a complex phenomenon consisting of various components. Its requirements are changing due to changes in socio-cultural conditions and technological developments in society. Thus, it is imperative to balance the design process with a grounded knowledge base that responds to the research engaging daily issues at the core. This, in turn, will inculcate a balance between students' skill development and the augmentation of creativity. To obtain this, educators/instructors are responsible for developing novel methods and approaches in the Design Studio, which is the heart of Architectural education [\(okan, 2019\)](#).

According to Ashby (2002), 'in Architectural education, case studies are used to analyze the existing design solutions. In this manner, instructors can demonstrate to learners the inferences of possible design choices, the relationship between various components of a product, contrast in form or connotation, etc., to enhance their perceptual abilities. Learners confront an enormous assemblage of probable design solutions during their schooling and proceed with it when they begin working in the field. Pictures from magazines and chronicles are used as reference material; product models are appreciated and considered as motivational information; buildings are scrutinized to plan the existing solution space, and so on.' (As quoted by Pasman,2003).

Information dispersed in the studio is usually packaged as case studies are taken from

the finest and a limited number of cases rather than from theocratical and standard principles. Precedents used for this matter are explicit projects and buildings that are commendable in some way so that architects and students pick up from these cases to provide strong backing to their design proposals. These precedents are used because they give some ideas to specific design issues and are a true example of an existing solution to a definite design problem (Akin, 2002). Despite the value and importance of studying precedent, the possible design outcomes do not convince many architects after analyzing these precedents.

As (Hawkins, 2021) discusses, he usually has a few battles with case studies and reference materials for himself. He had it even when he was a student a long time ago. He says that the investigation of existing buildings has merit, and there is information to be acquired from their examination. But he is concerned with the conception of "creativity" within the case study background and student's work. Since the considerate knowledge of precedent can lead to repetition and replication in the design process. Janson (1991) discussed apprehensions of precedent studies so that instances of existing design solutions may go about as potential obstructions in the thought process, hindering the advancement of new and creative ideas. They discuss that if designers are given a pictorial depiction of some object, portraying an actual acknowledgement of an answer for the current issue, it can bring about an untimely and surprisingly counterproductive obligation to this solution (As quoted by Pasman, 2003).

After analyzing the 104 buildings from different eras, styles, and regions, [Clark and Pause \(2012, 219\)](#) observed that specific formative ideas persist through time irrespective of place, style, and type. These ideas suggest ways to establish thoughts and offer order to create form consciously. Also, data collection to develop a program for a project relevant precedent analysis is included along with user demands and site analysis ([LaGro Jr 2007, 15&79](#)). In addition, the

Architect Registration Exam (ARE), according to the National Council of Architectural Registration Boards, expects architects to integrate historic precedents along with design theory and human behaviour (NCARB, 2005, p.36). Moreover, New Urbanism's advocacy of traditional neighbourhood setting as a solution to many contemporary urban problems is another example of the importance of precedent study ([Duany, Plater-Zyberk, & Speck 2001](#); Yaseen & Yasin forthcoming).

Appreciation of Term Precedent Study

Design precedents act as the designer's prior knowledge and understanding and the content that allow a designer to access memory and develop thinking. The precedent studies are well established in architectural education and have at least a reasonable consensus on their value and definition. It is hard to portray precedent studies in a selected manner since the strategies and destinations of these exercises can differ broadly. Precedent studies can refer to an earlier occasion or past case; on the other hand, it tends to be held up as a model, standard, or measure. The "study" of precedent may involve the most apparent cut-and-paste; on the other hand. It can be the reason for exceptionally complex research ([Weddle, 2010](#)). These studies help students comprehend basic design principles and build a more vital awareness of the design potential connected to a specific design problem. Since historical analysis is a method of instruction that is well-known to architecture students and can promote more profound knowledge, it presents an excellent chance to involve architecture students in the assigned job.

Precedents can relate to a preceding incident or case but can also be used as an example, benchmark, or yardstick. Precedents refer to particular designs or building projects that might serve as examples to architects and students to support their work. These examples are frequently earlier approaches for specific design issues. They are typically used to draw attention to a select number of design challenges, such as facade design, systems

integration concepts, structure, circulation patterns, etc. Precedents can be instructive in some circumstances, showing students what not to do by exhibiting some form of failure ([Akin, 1995](#)). The study of precedent can be as simple as copying and pasting, or it can serve as the foundation for more complex analysis ([Weddle, 2010](#)). In order to boost relevance and performance, relevant solutions are sought because the precedents serve as the foundation for subsequent research. Precedent-based studio methods are a successful and widely used method for teaching and learning design studios in architecture. For instance, the style of good designs at the Ecole des Beaux-Arts, one of the most commonly mentioned elite schools, is based on well-known and meticulously documented examples of early Greek and Roman architecture. The didactic curriculum of this institution is sometimes defined as a result of design concepts developed from these examples ([Akin, 2002](#)).

Learning from precedents through model making and analysis of precedents' fundamental relations is not a recent method. Corbusier appreciated the renaissance design movement's logical framework and used it in his compositional framework ([Rowe, 1947](#), cited in [Izar, 2019](#)). Even though precedent-analysis activities are frequently used in curricula, the diverse goals for which they are used highlight the complicated feelings our field has toward the past. Although historical examples are commonly used, their study is typically not intended to thoroughly examine the historical significance of the works in question. Instead, structures and enterprises are frequently removed from their historical settings, decoupled from their ideological and cultural foundations, and freed of chance and circumstance. While the historian tries to keep the work rooted in its historical context, studio teaching demands that it be brought up to date to provide information deemed pertinent for modern Design. Inherently, precedent studies make the case that issues of ideology and intent, geographic and cultural context, and

political and economic conditions are all minor details of concern to the historian rather than the designer. This is an argument about the place of history in the architectural curriculum. ([Weddle, 2010](#)).

Ways to Interpret Precedents

The ability to interpret and appreciate the existing built environments is an invaluable skill ([LaGro Jr 2007,86](#)). It is one of the significant challenges faced by the designers to make use of precedent /case studies. Drawing references from remote situations and utilizing them in novel ways is creative production. A designer may use sketchbooks to keep the information in memory, gathered from precedents, that will later be used in design formulation ([Lawson 2005,300-301](#)). It's been a norm in the creative design field to study what has already happened in that field. There are different ways to explore precedents. One way to study the already built structure to get information is to produce the actually measured drawings, as the method prevailed in the 18th century. For instance, James Stuart and Nicholas Revett's *Antiquities of Athens* (1762) and Giovanni Battista Piranesi's etchings, or Boullée's (1785) use of platonic volumes in the project of Newton's cenotaph ([Frampton 1980,12-13](#)).

Another way is to make photographs and drawings to study volumes without superfluous ornament. For instance, Corbusier used a Camera but relied heavily on sketching. According to [Corbusier \(1960,37\)](#), "we use eyes and draw to fix experience and what is seen" this all process means to look, observe, and then discover ([Ambroziak, Ambroziak, & Nichols 2005, 9](#)). Fig a. shows Corbusier's study of historic buildings in terms of volumes rather than ornamentation and styles. Similarly, Fig b shows the examination of precedent b Michael Graves that reveal elements of architecture, thus, transcending the questions of style to discover an underlying meaning ([Ambroziak, Ambroziak, & Nichols 2005, 13](#)).

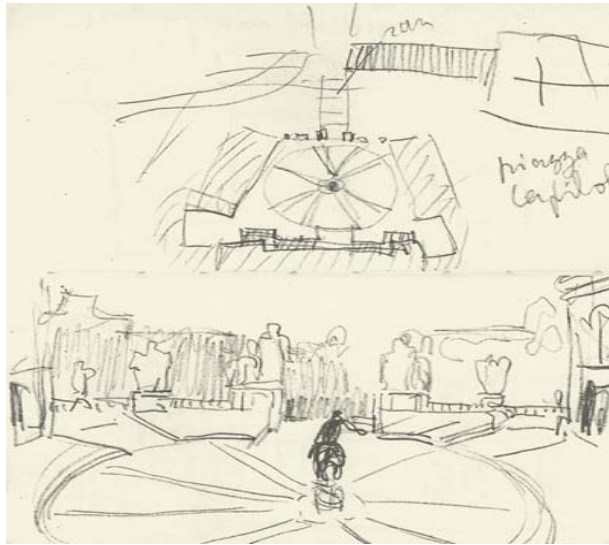


Figure 1: Le Corbusier, Sketches of Michelangelo's Campidoglio, 1911, pencil sketch
Source: ([Ambroziak, Ambroziak, & Nichols 2005, 8](#)).

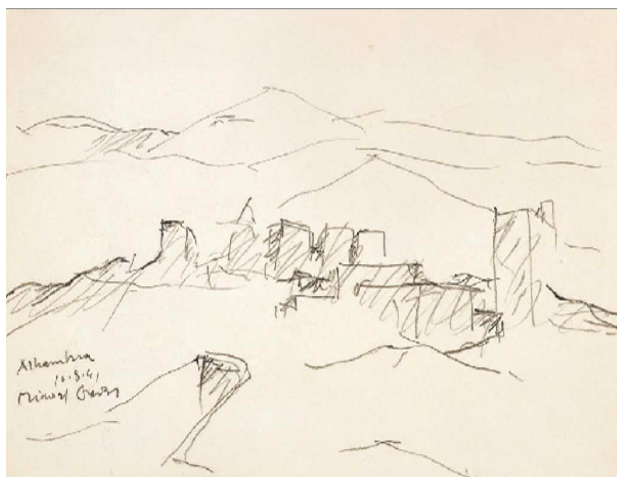


Figure 2: Sketch of Alhambra, Granada, Spain by Graves
Source (a&b): ([Ambroziak, Ambroziak, & Nichols 2005, 224](#)).

Analogical thinking to extract design elements from painting to develop design concepts was the method used by [Wu \(2014\)](#) in his Architectural studio. Likewise, [Clark and Pause \(2012\)](#) used diagrammatic methods to uncover the implanted knowledge in built structures by leading architects of different eras. As the process to design is essential rather than pre-

fixed ideology and theory, it is necessary to use the information practically rather than as a theory. Therefore, a systematic way to extract knowledge from precedents must be devised to keep the student's imaginations animated and productive, rather than falsifying and imitating during the precedent study phase.

Factors to Account for Conducting Precedent Studies

The following factors must be taken care of while introducing a precedent study or encouraging students to start a design project with a study of the previous case to avoid falsification and imitation.

- Romanticizing Decisions in Precedent Studies
- Neglecting Context
- Shallow appreciation

Romanticizing Decisions in Precedent Studies

Though the use of case study models as a reference and broad employment of precedent-analysis in Design is extensively recognized, the discussion of its role and impact in design development has been mainly founded on anecdotic metaphors or personal understandings. Philosophies in data handling propose that the architect needs the intellectual capacity to perceive and express the information rooted in current resolutions for creative design ideas. But most architects are not usually trained in this capacity, which makes it difficult to deviate from their predetermined ideas (Oxman R., 1997).

A similar concern is described by Weddle (2010) as an 'informational act,' examining the precedent—that can expose the precedent's worth. Where the primary concern is to draw examples from history, then utilize the studio instructions working on the process to transport the past knowledge to the present and extracting the information which is considered appropriate for present-day Design. As per Akin (2002), the deliberations from these cases are irreplaceable in associating conceptual and physical factors, which are the root of Spatial Design. The fact is that design training focuses more on a body of desirable outcomes than on principles or theories. Based on this, they are anticipated to yield similar products with innovative features (Akin, 2002).

Therefore, precedent studies are very significant in Architectural design studios but at

the same time very critical since students get carried away with the ideology and style of that particular building and the architect of that building. Therefore, it is said that Studios often promote ideologies rather than encourage critical thinking (Glasser, 2000). For instance, under the strong influence of Eisenman and Lebuskind, students at Cooper Union are expected to "de- or reconstruct" the world according to their beliefs. Similar to this, Louis Khan's effect on University of Pennsylvania students may be seen in their emphasis on materiality and geometry. In this regard, it must be acknowledged that academia has not benefited from this practice of adopting the manifestos of proclaimed design icons during the previous years (Glasser, 2000).

Neglecting Context

Context is 'the situations under which something happens or exists, which can assist in understanding it' (Cambridge University Press, n.d.). Context relates to the situation in which a concept, text, assertion, or form can be comprehended. The surrounding environment and its different constructions, including physical, socio-economical, biological, cultural, and so forth, serve as the background for urban architecture. The (re-)new architectural work is intended to be woven seamlessly within the surroundings (Bhuvan, 2016). While undertaking a precedent study, students often overindulge in the design solutions presented in case studies that they forget their Context.

Developing competent professionals who will contribute to the welfare of any society through their critical thinking and ability to incorporate the essence of the past into their present practice is, of course, the goal of the teaching profession in general and particularly in Architecture. Although, concerns about the greater contextual environment are marginalized by the emphasis on innovation and novelty, which has become a trend (Glasser, 2000). In this rat race of making something new, most graduates lack the skills necessary to complete minor tasks with caution and awareness of the Context in which they are

being used. As a result, those 'novel buildings look different and offer less comfort when judged regarding climatic conditions and socio-cultural values. One example is the use of steel and glass in the Pakistani Context. Non-Contextual Practices gradually shifted indoors due to culturally inappropriate and shrinking outside places. As a result, indoor spaces were modified to support these habits, which increased the use of air conditioning (in Punjab, Pakistan, ownership of AC units increased by 19 times between 1992 and 2014) ([Khalid & Sunikka-Blank, 2018](#)). In the race of novelty, it has been forgotten that non-sustainable behaviour Arrangements should be contested rather than replicated ([Gram-Hanssen, 2014](#)).

Shallow Appreciation

"Learning by Doing" should be the governing spirit of this architecture design studio pedagogy. The system of instructions developed, thus, is to involve the learner/apprentice in experimentation with space models for the understanding of space handling and spatial behaviours of already built structures. Usually, Students in Architectural studios are not provided with the principles to construct Design. Instead, they have given a variety of precedents to learn heuristics ([Akin 2002](#)). These kinds of shortcuts usually lead them towards imitation instead learning unless a proper method is devised to study the precedents. Therefore, it is recommended that the teaching focus should be on the development of designer individuality and hence aims to create an environment whereby personalized speculations and projections are encouraged in the realization of multiplicity, diversity, ingenuity, and creativity of design reactions. A layered mechanism of analytical reasoning and understanding of the phenomenon establishes a discipline for achieving creative and scientifically grounded architectural solutions. For example, suppose a student is motivated by a building's aesthetics and material choices without understanding the philosophy behind

the Design and use of such materials. In that case, the result could be a replica that would be uncomfortable for the user in a different climate zone.

Conclusion

If done carefully, precedents can be helpful for future design improvement. The precedent analysis aids in comprehending answers that have already been provided to specific design challenges. By critically analyzing the systems and tactics used to create exemplary work, it is possible to achieve more polished and high-quality results by carefully analyzing the motivations and strategies used. Instead of fabrication and imitation, as noted by Elioti (2009), the extraction of embedded information from previously created initiatives will open up new possibilities. This study has identified a few frequent mistakes when performing precedent studies, i.e., romanticizing Decisions in Precedent Studies, Neglecting Context, and shallow appreciation without a proper mechanism. Therefore, it is essential to conduct a precedent study analytically considering the advantages and disadvantages of a solution offered in that precedent according to Context rather than as an icon or ideal to benefit from it.

One of the ways to conduct precedent analysis is to increase learners' excitement and interest; nonetheless, this research calls for further insights and experimentation to conduct a precedent study/case study in Architectural Design Studio to furnish more exciting and productive outcomes.

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