



Alternative Elected Pedagogy of Architectural Education in Design Studio Evaluation of the Architecture Department of University of Mosul

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Abstract

The pedagogy of architectural education in the design studio has been distinguished by growing and sophisticated forms adopted over the centuries, due to continuous progress in architectural schools' curricula and intellectual and conceptual trends. This paper aims to establish a theoretical framework for current models pedagogy in the design studio, incorporating learnings from successive architecture schools, for the Department of Architecture's specificity at the University of Mosul, Iraq. The case study methodology involves practical implications of the teaching staff profession having a sample of 30 teaching staff specialising in design education curricula and adopted the qualitative questionnaire's research method. It investigated the convictions and guidelines for lecturers within the basic categories describing alternative models (architectural concept, design process, teaching style). The study shows that using only two main models for the department's basic stages is to enhance the design process's sequential steps based on the adoption of information and data related to context and society and its elaboration in alternative solutions from the student's subjectivity. The limitations of the theoretical knowledge base and professional experience of teaching staff for alternative models are reflected in adopting the familiar model without attempting to renew teaching models.

Disciplinary: Architecture and Architectural Education.

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1 Introduction

Despite enormous changes in the urban context, the urban environment, and the architecture itself from the buildings, designs, and construction materials, the current curriculum

for design education continues to follow the old and developed principles, rules, and practices that have represented different schools of art: Nouveau, Bauhaus and, to a lesser extent, influential Vkhutemas School. It is still predominant and visible in architectural and design education. The adoption of new forms of integrated teaching methods that address teaching and learning practices within, through, and outside classroom situations necessitates thorough research and a reliable examination of current architecture and design education developments. Remarkably, these emerging models of design education are expressed in specific contexts where academia is still distancing itself from the real world, and is immune to real human problems, thus losing valuable opportunities to learn from the richness, depth, and diversity of the human experience. Scientific research stems from identifying and discussing new pedagogies of practice and assets of teaching/learning design, which emerged subsequently through analysis and logical extrapolation of some of the fundamental design and thinking processes. This paper aims to identify alternative models and present an analytical narrative of ten different teaching models applied in architecture, with a case study of the Department of Architecture, University of Mosul.

2 Literature Review

Many divergent views emerged in the description and definition of architectural education curricula in the design studio. The British Encyclopedia defines architecture as "The art and technology of design and construction", where Cambridge Dictionary as "The art and practice of design and building product." Though the definitions appear simple, the reality/ theory indicates much more arena. The famous Archdaily website shows 121 independent definitions by the media, celebrities, and specialists, which reflect the magnitude of diversity and pluralism and perhaps difference that characterises theory and architectural practice. From many architectural theorists, it can be conceived as a mixture of art and science, a form of social art (Samuel Mockbee), urban ballet (Aaron Betsky). Architecture can also be defined as an instrument whose role goes beyond achieving a job to dream fulfilment (Roland Barthes). It is possible art, communication language. A means to achieve the civilisational moment (Jean Nouvel), one of the manifestations of the achievement in the design process (Sam Jacob). Therefore, the architecture has to break down the limitations of material attachment to rise to the inspiring idea level. Some also believe that architecture is considered the context of economic forces, and its tools are used to enhance the domination of major institutions and express their competitiveness. Architecture is also sometimes employed as a political tool with an excellent ability to influence individuals and groups by carefully selecting the formal language (Yari et al., 2012).

3 Architectural Design Studio

The architectural studio's definition as the space that contains teaching architectural design activities goes beyond the environment that simulates the professional working for design events. This studio environment encompasses where students are trained to identify design problems, put forward, evaluate alternatives to solutions, develop the selected alternatives, test the final design product, and present them to the evaluation committees. Thus, the students gain a sufficient

amount of communication skills with the groups and defence and persuasion skills for the design solution in front of the evaluation committee members for projects; this acts as a prelude to benefit the students from these skills in interacting with colleagues from the field of specialisation and with multiple clients in the context of professional reality (Yari et al., 2012).

A horizontal studio is adopted in most of the departments and schools of architecture worldwide. A group of students with the same educational level is taught in the same environment. A vertical studio includes students from different levels in the same educational environment, and under the supervision of one group of teachers for architectural education courses at all levels. The vertical studio provides many opportunities to both the students and teachers by developing the work environment and the evaluation process to exchange over a wide range of challenges that deserve consideration. A multidisciplinary design studio brings together students and professionals from more than one speciality - urban planning, urban design- and site coordination is also common. Students simulate professional planning or design activities during the adoption of the vertical or participatory studio. It requires immense effort and time to formulate a solid plan for management, coordination, and follow-up on the implementation (Saghafi et al., 2015). Learning is a holistic process that involves thinking, feeling, perceiving, and behaving; in it, the adaptation to the world is achieved by the integrated functioning of a person. Hence, considering this holistic view of the learning process, students' cognitive skills were examined in the design studio (Tezel et al., 2010; Symes, 1985). To understand design and build environment professionals who share skills, values, and approaches that offer a principal field for integrating ethical and social approaches into knowledge construction for an architect (Salama, 2015).

4 Directions for Pedagogy in a Design Studio

A critical and pro-active response to the outmoded and inadequate model of traditional studio pedagogy can neither effectively address contemporary society's design needs nor acknowledge the evolving nature, changes, and design profession. Salama (2015) states that some alternative pedagogical models have been adopted, developed, and utilised by various educators. A model represents a set of rules for choosing procedures. These rules give legitimacy to a set of techniques and tools for design activities in the learning set or the design studio (Salama, 2015).

These models are

1. The Case Problem (Experimental) Model (**CPM**)
2. The Analogical Model (**AM**)
3. The Community-based Design Learning model (**C-bDM**)
4. The Hidden Curriculum Model (**HCM**)
5. The Pattern Language Model (**PLM**)
6. The Concept-test Model (**C-tM**)
7. The Double-layered Asymmetrical Model (**D-IAM**)
8. The Energy-conscious Model (**E-cM**)
9. The Exploratory Model (**EM**)
10. The Interactional Model (**IM**).

The methodology used to analyse various alternative pedagogical model includes the following three categories (Figure 1).

1. The conception of architectural design
2. The design processes
3. The teaching/learning style.

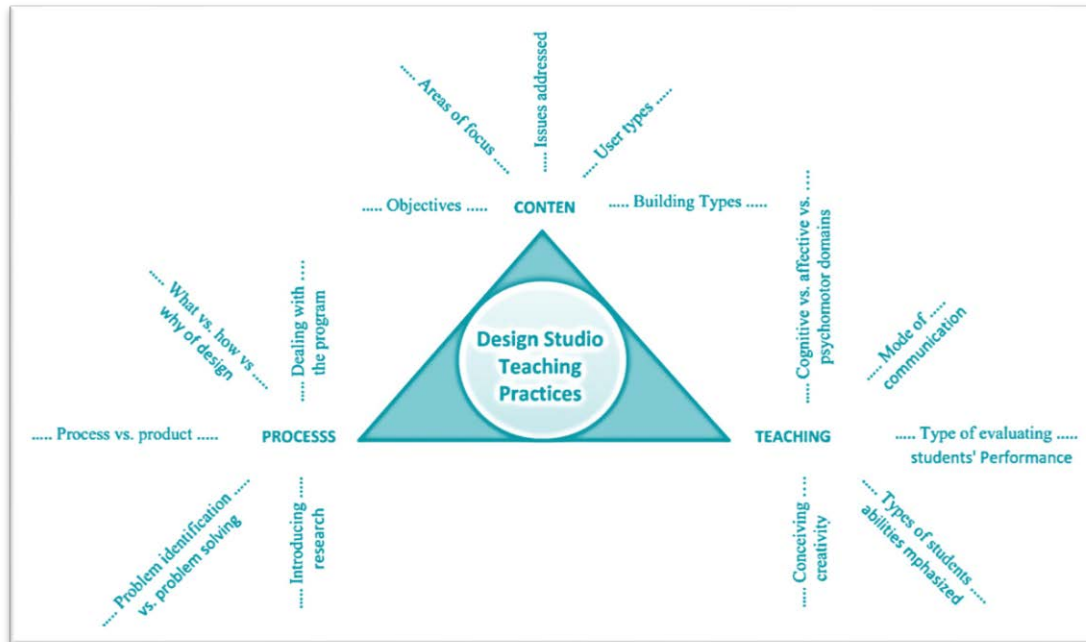


Figure 1: Issues examined relevant to the design studio (Salama, 2015).

Table 1: Conceptual framework of alternatives architectural design studio pedagogy

Basic categories	Second categories	Practical values			
Architectural design concept	Designer-related concept	Designer subjective	Design is an intuitive and reasoning activity.		
			Design is a creative problem-solving activity.		
			Design is an activity of invention.		
		Design product	Design is an activity of induction, deduction, and linking theory with a practical problem.		
			Design is an activity of verbal, numerical, and form exploration.		
			Design is an activity exploring solutions.		
	Social-related concept	For individuals	Design is an activity that engages designers, intellectually and socially.		
			Design is an activity that involves client/user in decision-making.		
		For prevalent belief	Design is an activity of investigation of social mechanisms.		
			Design is an activity that includes political and economic trends.		
			Design profession-related concept	The methodology of a design problem	Design inactivity in which designers shift between analytic, synthetic, and evaluative modes of thinking.
					Design is an activity of gathering information about physical relationships of recurrent situations
The methodology of design solution	Design is an activity that includes analogy as the riches source for creative ideas.				
	Design is a developmental process of physical skill.				

Design process	User/client characteristics	General characteristics	Emphasises social, political, and cultural relationships within society.
			Focuses on transforming behavioural information in architectural form.
		Personal characteristics	Encourages interaction with client/user while defining design constraints
	Designer characteristics	Stresses the designer's values to personalise the program.	
	Designer-user communication	Grouping communication	Inspires group discussion for identifying design intentions.
			Incites reaching consensus in decision-making.
		Personal communication	Involves simulation games to prepare the client/user to respond and act.
	Goals requirements	Gathering information goal	Considers the programming phase as a crucial part of the studio.
			Includes reviewing the literature starting the design phase.
			Includes information gathering and defining design imperatives as primary steps.
Producing alternatives goals		Emphasises acquiring knowledge while producing design alternatives.	
		Encourages the production of a schematic proposal as a starting point.	
		Explores the design problem rather than simply reaching a solution.	
Teaching/ learning style	Emphasis student as a basic member of the learning process	Presence competition motive between students	Considers motivating the student as a major part of the process.
			Underscores the student's critical abilities.
			Considers individual differences a major part of the process.
		Presence collaborate motive between students	Focuses on groups and individual work.
	Emphasis learning process	Emphasis product/learning process relationship	Incorporates self and peer evaluation.
			Combines instruction and reaction modes of learning.
		Emphasis identify problem rather than gathering data	Focuses on differentiating relevant information in each design stage.
			Integrates desk crits and group reviews.
	Emphasis design requirement-constraints	Permits learning to occur under controlled pedagogic orientation	
		Permits learning about the process of change in a dynamic environment.	
	Emphasis learning goals	Knowledge goal	Emphasise the knowledge should be incorporated into particular situations.
			Utilises a holistic approach to learning.
		Professional goal	Develops student's contingent thinking abilities
	Applies creative problem-solving techniques.		

5 Methodology

This research adopted a qualitative inferential research methodology to describe pedagogy models being applied in the department of Architecture at the University of Mosul - as a case study - through a comparative approach to learning patterns and teaching style of basic academic levels (second, third, fourth, fifth stages) in the department, in which the steps and activities of the design process directed to students are clear by the teaching staff. The methodology of the case study analysis aims to determine the practical application of the teaching profession and its

reflection in the style of learning within the design studio environments, and the most important: first, explaining step that followed in applying the education model, second, how to design product solutions, and which of them are the most used and for what purpose. The questionnaire is used as a study tool (see appendix). This study sample consisted of 30 teaching staff specialised in design education curricula and adopted the questionnaire method to investigate the convictions and guidelines of lecturers within the basic categories describing the pedagogy model:

- The conception of architectural design (V1-V14).
- The design process (V15-V27).
- Teaching/learning style (V28-V41).

Furthermore, the vocabulary of qualitative variables, possible values, and activities in the practical application of the design studio environment was also measured.

6 Results and Discussion

The results of the practical study, according to the output of the questionnaire for the teaching staff of the academic stages (second, third, fourth, and fifth), indicated a clear variation in the values of the mean for variables (see Figures 2-4)

The second stage results indicate high activity for a variable (V6, V10) that emphasises that architectural design concepts are a creative activity to solve problems. That design is an activity to explore solutions. In contrast, the variables (V14, V3) were less activated, indicating that the staff's concept departs from being an activity that includes analogy as a source of creative ideas. This activity includes political and economic trends. As for the design process, the results indicated a great activate for the variable (V26, V24), which enhances the staff's dependence in the design process on desired goals in terms of gathering information. Identifying design necessities as a basic step, as well as encouraging the submission of an initial planning proposal as a starting point, while the least was activate is the variable (V17), which confirms that the design process is not based on encouraging interaction with the client/user in determining design limitations. As for the teaching style used, the results indicated the activity's activity (V30, V28) by adopting student motivation as an essential part of the learning process and ensuring that individual differences are a large part of the design process.

The third stage results showed great activate for a variable (V10-V6), while it showed less activate for the variable (V9-V3); this indicates staff departure from dealing with the design as an activity that includes analogy as a rich source of creative ideas, and that it is a verbal, numerical, and formal exploration activity. As for the design process, the results indicated a great activate for the variable (V26-V20), which indicates the dependence of staff on emphasis communication between the designer and the user through incitement to reach consensus in decision-making and encourages a preliminary planning proposal as a starting point, as for learning method. The results also indicated the greatest activate of the variable (V30-V28).

The fourth stage results showed the largest activate of the variable (V10-V1), which indicates staff's dependence on the concept of design as an activity in which designers move

between analytical, synthetic, and evaluative thinking patterns. The results indicated that the lowest activate of the variable (V4) by not adopting is an evolutionary process of physiological skills. As for the design process, the results indicated a great activate for the variable (V24, V17), that demonstrated that the staff believing in the design process encourages interaction with the customer/user in identifying design restrictions; it includes collecting information and identifying design necessities as basic steps, and finally, the results of education style have shown the superiority of the variable (V36, V34, V28), showing that staff in the teaching method depends on considering student motivation as an essential part of the process and focuses on distinguishing relevant information at each stage of the design and allows learning under controlled guidance.

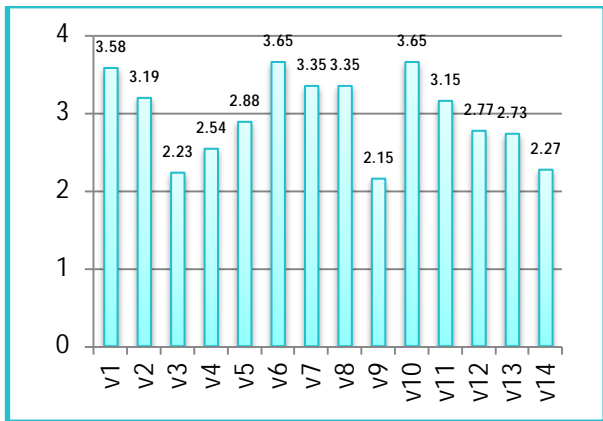


Figure 2: Mean values of architectural design variables V1-V14

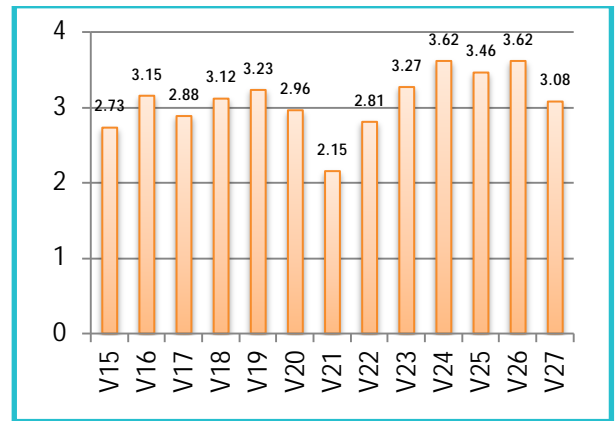


Figure 3: Mean values of design process variables V15-V27

The fifth stage results also indicated great activate (3.6) for the V6 variable (V6), since the architectural design is a creative activity to solve problems. It was less active for some variables (V14, V5), indicating intuitive and logical activity, including the scope of including the design's political and economic trends. As for the design process, the results indicated the quantified activate of the variable (V22, V18), which enhances that the process emphasises the designer's special values in shaping the program according to his personality. The programming stage is an essential part of the studio. The least active variable, V21, includes simulation games to prepare the customer/user for the reaction and response. As for the teaching style results, V38 and V28 variables were the most active, which also shows the consideration of student motivation as an essential part of the learning process and the assurance that knowledge must be integrated into certain places.

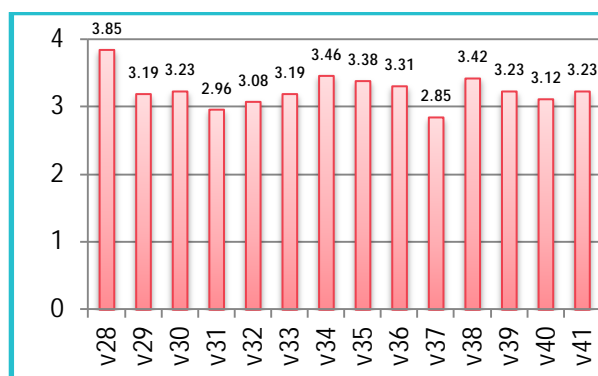


Figure 4: Mean values of learning/Teaching style variables V28-V41

As for the results of the educational system as a whole for the Department of Architecture Engineering (all stages), the current study highlighted the significance of the three variables: V1, V6, V10 related to the concept of architectural design according to the vision of the teaching staff, that indicates using the Community-based Design Learning model in which design is the activity in which designers shift between analytic, synthetic and evaluative modes of thinking. It is a creative activity to solve problems and explore solutions.

As for the results related to the design process and according to the vision of the teaching staff, it indicated clear importance of some variables (V16, V19, V24, V25, V26) indicating follow-up of the "The Double-layered Asymmetrical Model" which considers the design process as focusing on converting behavioural information into the architectural form and inspires group discussion to define design tasks, includes gathering information, identifying design necessities as basic steps and encourages the production of a schematic proposal as a starting point.

This study also attaches importance to three variables (V28, V34, V38) that show using the "The Double-layer Asymmetrical Model" when the results related to the teaching /learning style are the vision of the teaching staff are concerned. This model is considered the most pedagogic in motivating a student as an essential part of the process. It focuses on differentiating relevant information in each design stage and ensuring the integration of knowledge.

7 Conclusion

The fundamental pedagogies of the architectural design studio education are frequently subject to highly developed stages and results in enhanced knowledge in the field of architecture in terms of technological progress in the professional field, and the advancement of knowledge in the theoretical field; this is reflected in a change in the teaching/learning pedagogy in parallel, the specificity of the Department of Architecture - the University of Mosul mostly follows one model that adopted systematic steps. These steps involve collecting the required information, activating that information in exploring various alternatives to the solution according to the student's subjectivity, developing those solutions according to the student's view as well) that adoption of using a single model for all stages resulted from limited theoretical knowledge for teaching staff with all models established for the pedagogy design studio, as most of the staff are a graduate of the same department and follow the same familiar model for the pioneers. The department is closed to foreign professional educators that may use different teaching assets; this is the staff's conviction the easy application of this model, with guaranteed results, and, last, bears most of the responsibility for the architectural products.

8 Availability of Data and Material

Data can be made available by contacting the corresponding author.

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10 Appendix - Questionnaire

The researcher seeks to breach the privacy of the Department of Architecture Engineering - University of Mosul, in pedagogy teaching and learning in the design studio within the basic academic stages, and to diagnose the most important reasons for their use and scientific feasibility for them, through a survey of the teaching view of the models of approved methods put in the literature of architectural education. The questions are in three categories (concept design, design process, teaching style).

(1) General Questions

- Academic degree for the lecturer:
- Years of active service:
- Precise specialised:
- The academic stage assigned to him: more than one academic stage:

(2) The first axis (the concept of architectural design): What is your vision of the design concept that you adopt in teaching in the design studio?

No	The conception of architectural design		Use of activity			
			High	medial	low	None
V1	Design profession-related concept	Design inactivity in which designers shift between analytic, synthetic, and evaluative modes of thinking.				
V2		Design is an activity of gathering information about physical relationships of recurrent situations				
V3		Design is an activity that includes analogy as the riches source for creative ideas.				
V4		Design is a developmental process of physical skill.				
V5	Designer-related concept	Design is an intuitive and reasoning activity.				
V6		Design is a creative problem-solving activity.				
V7		Design is an activity of invention.				
V8		Design is an activity of induction, deduction, and linking theory with a practical problem.				
V9		Design is an activity of verbal, numerical, and form exploration.				
V10		Design is an activity exploring solutions.				
V11	Social-related concept	Design is an activity that engages designers intellectually and socially.				
V12		Design is an activity involving client/user decision-making.				
V13		Design is an activity of investigation of social mechanisms.				
V14		Design is an activity that includes political and economic trends.				

(3) The second axis (design process)

What is your vision of the design process that applies in your design studio:

No	Design process		Use of activities			
			High	media l	low	None
V15	User/client characteristics	Emphasises social, political, and cultural relationships within society.				
V16		Focuses on transforming behavioral information in architectural form.				
V17		Encourages interaction with client/user while defining design constraints				
V18	Designer characteristics	Stresses the designer's values to personalise the program				
V19	Designer-user communication	Inspires group discussion for identifying design intentions.				
V20		Incites reaching consensus in decision-making.				
V21		Involves simulation games to prepare the client/user to respond and act.				
V22	Goals requirements	Considers the programming phase as a crucial part of the studio.				
V23		Includes reviewing the literature starting the design phase.				
V24		Includes information gathering and defining design imperatives as primary steps.				
V25		Emphasises acquiring knowledge while producing design alternatives.				
V26		Encourages the production of a schematic proposal as a starting point.				
V27		Explores the design problem rather than simply reaching a solution.				

(4) The third axis (teaching/learning style): What is your belief in teaching style that uses in the design studio?

No	Teaching /learning style		Use of activity			
			High	Media	low	None
V28	Emphasis student as a basic member of the learning process	Considers motivating the student as a major part of the process.				
V29		Underscores the student's critical abilities.				
V30		Considers individual differences a major part of the process.				
V31		Focuses on groups and individual work.				
V32	Emphasis learning process	Incorporates self and peer evaluation.				
V33		Combines instruction and reaction modes of learning.				
V34		Focuses on differentiating relevant information in each design stage.				
V35		Integrates desk crits and group reviews.				
V36		Permits learning to occur under controlled pedagogic orientation				
V37		Permits learning about the process of change in a dynamic environment.				

V38	Emphasis learning goals	Emphasise the knowledge should be incorporated into particular situations.				
V39		Utilises a holistic approach to learning.				
V40		Develops student's contingent thinking abilities				
V41		Applies creative problem-solving techniques.				



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