

# Development of the Idea of Design by Class Box Approach In The Architectural Design Projects

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## ABSTRACT

There are two approaches are used in the architectural design: the first intuitively based on personal experience and intuition. the second-oriented rational, and supports this approach on the premise is that the control of the design process provides the potential to control the results .Current search Put the following hypothesis (that the changing of concept of design is affected by using architectural design approach) by setting a clear goal for the search is that the practice of architectural design in the Iraqi architectural school curriculum affects directly proportional impact on the development of the idea of design for students users of this approaches sampling of projects have been taken from students in the second stage for the two projects in the Department of Architecture in one of Iraqi university by using three steps of cognitive development (knowledge - formations (Compositions, analysis) to extract the results .

**Keywords :** Class Box, Architectural Approach, The Design Concept, Thinking

## I. INTRODUCTION

The architectural design describes repeated circles of thoughts in design operations, it understood as a cycle form. And it's a circular time, which may begin with thinking about the idea, and then express it through the use of visual shape of concept in design, and sharing and awareness of the idea expressed in this concept emphasizes the importance of means of expression, which is at the same time means the realization of any design idea this research divided in two part one deals with the subject of the relevant terms of thinking and the other to prove the hypothesis of research.

1-1 intellectual processes in architectural design : viewed from different points in the perspective of psychology , the symbolic effectiveness , while others think that it is the process to collect information obtained from abroad . the process of thinking interpreted from the perspective of piaget (jean piaget) it's the process of adapting between the individual and his environment, this adaptation, which includes a two subgroups, ( the information and analysis it ), and in those cases should use the traditional methods , or to

use new strategies, and use an adjust method of strategies to cope with such a challenge, and in all cases they shold build mental schemes which deal with the environment (morris, 2004, p.258).

Hhuman thinking devided to five tasks or basic functions, description, interpretation, governance, organization, and implementation. And it shows these functions as the researchers tried to find some kind of relationship between the actions of thinking by the mind, and between production processes in architecture by linking the mechanics of thinking and between stages to reach the solution to the design problem and what was the process design combination of mental acts that seem often infrequent and not work according to a unified mechanism, the difficulty lies in finding ofthese links for each stage of production and despite the fact that thinking put forward by most of the studies model was based on a model (asimov) known in the, but the overlap like these phases with analysis, synthesis and evaluation stages each other,(zeisel, 1986, p.12) that the design process involves overlapping three thought patterns is the imagination (imagination) and presentation (presentation) and evaluation (testing) with two types of

information are stimulating to the imagination with cybernetic body to check (corpus knowledge for checking) is going to spiral (spiral) the progress of the design deed is done by a series of match concepts creative transitions. Lionel March (L. March) tries in his study (the logic of design and question of value) in 1976 to build its arguments about intellectual restructuring of the design process based on the data the prevailing model for data formal logic (formal logic paradigm) have launched (March, 1976, p.266) adopting the proposals of Popper in a supposedly logical model of the mechanisms that operate on the production design of thought in an attempt to get to the formulation of the foundations of rational design (rational design) proposed model consists of three stages depending on the logic of the picture as follows: analyzes (decompositions) intellectual products of a designer using the mechanisms of deductive reasoning (Deduction) and often turn to the designer of the data analysis task to reach the preliminary results, which works on the investment later operations. Second assumptions (Suppositions): an intellectual outcomes reached by the designer with the help mechanisms of inductive reasoning group (Induction) taking advantage of the results of the analysis to create a working rules in intellectual production later.

### A. Compositions

An intellectual productions by the designer collection with the assistance of the mechanisms inferred pilot (Abductions) which processes producing (Productive) in design thinking, because it is composed of attempts designed to take advantage of the rules for the installation of elements, including one of the three cases: first, in which case ideal when you incentives (data) are included or containing each space intended results and free from any room for doubt, and as an example it when utilized designer of building codes as a delimiter implicit in his findings to create configurations of space 'and second, which is most commonly used when the data are containing a portion of output with acceptable space Doubt logical As an example of them when the designer takes advantage of the topography of the data of the site to create levels of the building, and the third was a condition logical suspicion wide when data are beyond the cover outputs space show this case to include the important design semantic and moral elements by the designer.

## II. METHODS AND MATERIAL

### Architectural Design Schools in the Iraqi Practical Approaches

There are two methods were and still are used in the Iraqi architectural schools are:

#### A.1. (black box) Method

This method is summarized that the architect conducted a quick analysis of the requirements and available resources and after the giving initial concept for the architectural configuration, which seems appropriate even this stage and eliminates all the remaining time of the design process to develop this configuration by addressing its problems by a sequential Often, the process of creating the idea Initial or solution design depends largely on restructuring the design as an integrated whole problem and turn it from a complex problem to the same simplified structure problem often restructure problem process tests the most important element of the problem is the focus of designer affected and chooses an intuitive to a large extent this and then start the development phase The idea and the more mature detail design work progress. One of the main characteristic of design thinking in this style is the sequence of the public to the private or of all to the part or from the outside to the inside In other words, the most important decisions design taken at the beginning and this self-styled usually idea Concept and after the alternate decisions less important, partial, or detailed and seems This method of observation by the fees we note that the first draw inbuilt design idea and fees that followed are becoming more apparent and keeps asking what the first drawing or reinforced. A key positive thing which is characterized by this style is continuity in all the graphics that illustrate the various stages of the design process preliminary initial idea landmarks notes landmarks in the introduction and the first semi-final plans and final a more advanced stage of design whenever reinforce what is accepted .fig. (2-1)

one problem → one solution → the development → the solution

**Figure 1:** shows the stages of the first approach (black box)

## A.2. (Glass Box) Method

In this approach the architect first analysed the broad requirements and available resources and then given alternatives solutions are divided then these alternatives and elected optimization model which is then development on this model for the selection of a design idea, so this approach depends on the following stages: a) the analysis phase b) installation c) Evaluation d) Development ( Ukaily, Dr. Maysoon & Mushb, Sabah, 2012, p. 23 ).

Architects who use curriculum Glass Box trying to split the design problem to many problems and then conducting the analysis for each of the problems process as shown in Figure (2-2):

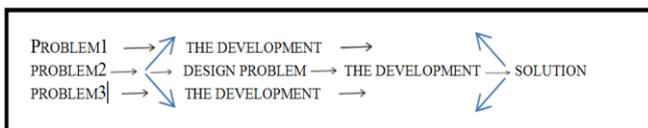


Figure 2: Illustrates the Second Approach

## III. RESULTS AND DISCUSSION

For the purpose of applying the research hypothesis adopted in the search has been studied the evolution of the idea of design on the two projects in the architectural design for the second stage for the entire month of each architectural project and monitor the development of the idea of the project in each submission provided by the students within the transparent box approach adopted in elected architectural school was preparing a questionnaire by the researcher was offered to teachers from teaching architectural design in iraqi schools article to see the evolution of the idea of design compared to the stages set by lionel marge, which laid the foundation for the rational design stages three (appendix 1) was handling the answers statistically and reached the following results:

### A. Analysis Phase of The Design Idea

Show through the form of a questionnaire the person who answered yes by 80% in the analysis phase percentage was 9% and the number of A person who answered yes, 60% were the highest in this stage, reaching the proportion (83% ) But 30% of them were less than (5%) and the proportion of A person who answered in the negative was (3%) which proves that

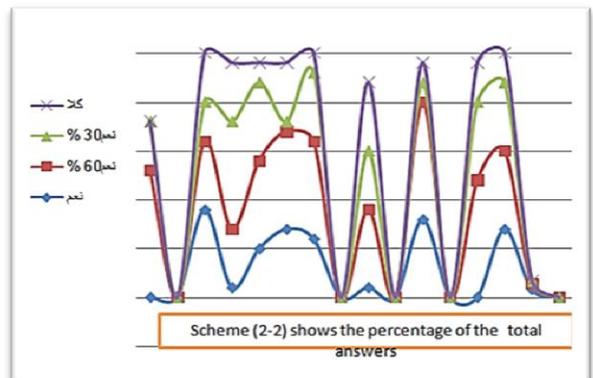
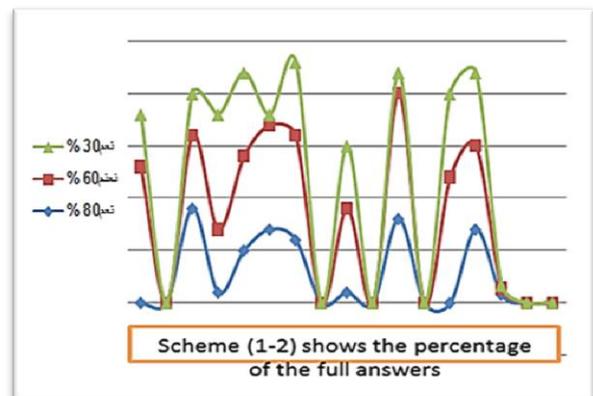
this stage will be very important in the development of the main ideas of the project. Figures (2-1) and (2-2).

### B. Stage Design Assumptions for the Idea

Show through the form of a questionnaire that the person who answered yes by 80% in the assumptions stage reached (20%) and the number of the person who answered yes, 60% were the highest in this stage was the proportion (23%) The percentage of 30% was less than that (55%), proving that this stage comes the second stage in the degree of importance for the previous stage of the evolution of design thinking by Lionel Marge. Figures (2-1) and (2-2).

### C. Formations Stage of the Design Idea

Show through the form of a questionnaire the person who answered yes by 80% in formations no stage was it took ratio (zero%) in the survey compared to the number the person who answered yes, 60% were the highest in reaching this stage increase of 78%, while 30% were less than that by (9%), which proves that this stage will be very important in the development of the design of the project idea either the answer was in the negative percentage (3%) of the total answers. Figures (2-1) and (2-2)



#### IV. CONCLUSION

We conclude from the practical part the following:

1. The stage design for the idea Analytics class box approach should be given attention in this approach because it entails the development of the initial design idea own perceptions.
2. The development phase of the idea for the design assumptions within the class box and this approach Fund supports research hypothesis.
3. Formations phase comes in second place in the evolution of the idea and design, according to statistics of the research.

#### V. RECOMMENDATIONS

Find the need to focus efforts to give the initial stages recommends developing a design idea biggest importance in terms of both time and money intensive architect in architectural schools to develop ideas well and facilitator.

#### VI. REFERENCES

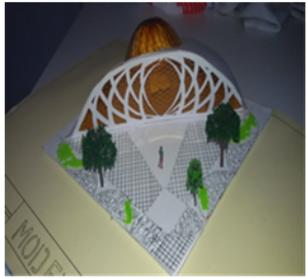
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## VII. APPENDIX

### MODEL OF THE QUESTIONNAIRE FORM

oN	YES			QUESTIONS OF QUESTIONNAIRE	THE APPROACH TAKEN BY THE STUDENTS DURING THE DEVELOPMENT OF THE IDEA IN ARCHITECTURAL DESIGN	THE FOUNDATIONS OF RA RATIONAL DESIGN) BY )o LONEL MARGE	ASSUMPTION
	%30	%60	%80				
				IT IS ADOPTED THE BASIC IDEA FOR THE STUDENT, MAINLY IN ?.. ITS DETERMINATION TO USE THE METAPHOR	THE USE OF METAPHOR IN DESIGN IDEA SHOWS		
				DO YOU THINK THAT THE STUDENT USED (COMPOSITION) THE BASIS FOR THE IDEA	(COMPOSITION) THE BASIS FOR THE IDEA		
				A FIRST, (DATA) DO YOU THINK THE IDEA INCLUDED THE EXPECTED RESULTS AND FREE FROM ANY ROOM FOR DOUBT, AND WHEN UTILIZED AS AN EXAMPLE BY THE DESIGNER OF THE BUILDING CODES AS A CRITERION IN ITS CONCLUSIONS IMPLICIT IN THE SPACE TO CREATE CONFIGURATIONS	MECHANISMS (ABDUCTIONS) WHICH IS PRODUCING OPERATIONS (PRODUCTIVE) IN THE DESIGN THINKING OF IT CONSISTS OF DESIGNER ATTEMPTS TO TAKE ADVANTAGE OF THE RULES FOR THE INSTALLATION OF ELEMENTS, INCLUDING ONE OF THE THREE CASES	(COMPOSITIONS	<p>EXAMPLE (1)</p> <p>CAFETERIA PROJECT</p> <p>STAGE II / ARCHITECTURE</p> 
			THE SECOND WAS CONTAINING DATA FOR PART OF THE ' PRODUCTION AREA WITH AN ACCEPTABLE RATIONALE OF SUSPICION AND AS AN EXAMPLE WHEN THE DESIGNER TAKES ADVANTAGE OF TOPOGRAPHIC DATA FOR THE SITE TO CREATE LEVELS OF THE BUILDING				
			AND THE THIRD WAS IS THE IDEA OF DESIGN, INCLUDING TAG ?..AND MORAL ELEMENTS BY THE DESIGNER				
			DO YOU ARRIVE AT THE IDEA OF DESIGN ELEMENTS AND RELATIONSHIPS REPRESENTED BY COMMON PRINCIPLES AMONG A GROUP ANALYZES PERFORMED BY A GROUP OF ?STUDENTS				

## MODEL OF THE QUESTIONNAIRE FORM

ON	YES			QUESTIONS QUESTIONNAIRE	THE APPROACH TAKEN BY THE STUDENTS DURING THE DEVELOPMENT OF THE IDEA IN ARCHITECTURAL DESIGN	THE FOUNDATIONS OF RATIONAL DESIGN	EXAMPLE (2) CAFETERIA PROJECT STAGE II / ARCHITECTURE
	%30	%60	%80				
				IT IS THE STUDENT SUCCEEDS IN HIS IDEA THROUGH THE ?DESIGN APPROACH USED	CLASS BOX	RATIONAL ) DESIGN) BY LIONEL MARGE	
				DO YOU FIND THE IDEA OF THE STUDENT THROUGH	FUNCTIONAL ANALYSIS	DECOMPOSITIONS)(	THE IDEA IS A DUAL-CONFIGURED FOOTBALL SEVERED AND OMITTED OVERLAPPING RELATIONSHIP BETWEEN THEM AND THE OTHER BALL THE THIRD DIMENSION  
					FORMAL ANALYSIS		
					ANALYSIS IN FORM AND FUNCTION		
				IT IS ADOPTED THE BASIC IDEA FOR THE STUDENT, MAINLY ?.. IN ITS DETERMINATION TO USE THE METAPHOR	THE USE OF METAPHOR IN DESIGN IDEA SHOWS	ASSUMPTION	
				DO YOU THINK THAT THE STUDENT USED (COMPOSITION) THE BASIS FOR THE IDEA	(COMPOSITION) THE BASIS FOR THE IDEA		
				A FIRST, (DATA) DO YOU THINK THE IDEA INCLUDED THE EXPECTED RESULTS AND FREE FROM ANY ROOM FOR DOUBT, AND WHEN UTILIZED AS AN EXAMPLE BY THE DESIGNER OF THE BUILDING CODES AS A CRITERION IN ITS CONCLUSIONS IMPLICIT IN THE SPACE TO CREATE CONFIGURATIONS	MECHANISMS (ABDUCTIONS) WHICH IS PRODUCING OPERATIONS (PRODUCTIVE) IN THE DESIGN THINKING OF IT	COMPOSITIONS)(	
				THE SECOND WAS CONTAINING DATA FOR PART OF THE ' PRODUCTION AREA WITH AN ACCEPTABLE RATIONALE OF SUSPICION AND AS AN EXAMPLE WHEN THE DESIGNER TAKES ADVANTAGE OF TOPOGRAPHIC DATA FOR THE SITE TO CREATE LEVELS OF THE BUILDING			

## MODEL OF THE QUESTIONNAIRE FORM

QUESTION	YES			QUESTIONS QUESTIONNAIRE	THE APPROACH TAKEN BY THE STUDENTS DURING THE DEVELOPMENT OF THE IDEA IN ARCHITECTURAL DESIGN	THE FOUNDATIONS OF RATIONAL DESIGN ) RATIONAL DESIGN) BY LIONEL MARGE	EXAMPLE (3) CAFETERIA PROJECT STAGE II / ARCHITECTURE /
	30 %	60 %	80 %				
				IT IS THE STUDENT SUCCEEDS IN HIS IDEA ?THROUGH THE DESIGN APPROACH USED	CLASS BOX		
				FUNCTIONAL ANALYSIS	FUNCTIONAL ANALYSIS	DECOMPOSITIONS	THE IDEA FORMATION COMPOSED OF OVERLAPPING CIRCLES THIRD DIMENSION 
				DO YOU FIND THE IDEA OF THE STUDENT THROUGH FORMAL ANALYSIS	FORMAL ANALYSIS		
				ANALYSIS IN FORM AND FUNCTION	ANALYSIS IN FORM AND FUNCTION		
				IT IS ADOPTED THE BASIC IDEA FOR THE STUDENT, MAINLY IN ITS DETERMINATION ?.. TO USE THE METAPHOR	THE USE OF METAPHOR IN DESIGN IDEA SHOWS	ASSUMPTION	
				DO YOU THINK THAT THE STUDENT USED (COMPOSITION) THE BASIS FOR THE IDEA	(COMPOSITION) THE BASIS FOR THE IDEA		
				INCLUDED THE EXPECTED RESULTS AND FREE FROM ANY ROOM FOR DOUBT, AND WHEN UTILIZED AS AN EXAMPLE BY THE DESIGNER OF THE BUILDING CODES AS A CRITERION IN ITS CONCLUSIONS IMPLICIT IN THE SPACE TO CREATE CONFIGURATIONS	MECHANISMS (ABDUCTIONS) WHICH IS PRODUCING OPERATIONS (PRODUCTIVE) IN THE DESIGN THINKING OF IT CONSISTS OF DESIGNER ATTEMPTS TO TAKE ADVANTAGE OF THE RULES FOR THE INSTALLATION OF ELEMENTS, INCLUDING ONE OF THE THREE CASES	COMPOSITIONS	
				THE SECOND WAS CONTAINING DATA FOR PART OF THE PRODUCTION AREA WITH AN ACCEPTABLE RATIONALE OF SUSPICION AND AS AN EXAMPLE WHEN THE DESIGNER TAKES ADVANTAGE OF TOPOGRAPHIC DATA FOR THE SITE TO CREATE LEVELS OF THE BUILDING			
				AND THE THIRD WAS IS THE IDEA OF DESIGN, INCLUDING TAG AND MORAL ?..ELEMENTS BY THE DESIGNER			
				DO YOU ARRIVE AT THE IDEA OF DESIGN ELEMENTS AND RELATIONSHIPS REPRESENTED BY COMMON PRINCIPLES AMONG A GROUP ANALYZES PERFORMED			
				DO YOU ARRIVE AT THE IDEA OF DESIGN ELEMENTS AND RELATIONSHIPS REPRESENTED BY COMMON PRINCIPLES AMONG A GROUP ANALYZES PERFORMED ?BY A GROUP OF STUDENTS			