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# Architecture: The Transformation from Thinking to Design

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***Abstract:*** ***To understand the design process, think of it as a problem-solving approach that combines creative talent with art and science to create solutions. Many designers go through a design process that follows a certain order; however, this process includes some stages that were discovered to be particularly successful. The design process may be deliberate or automatic, depending on the kind of project the designers work on. For many architects, the design process and methodology are critical to the creation of creative design solutions. Many experiments have been conducted on design methods, and these studies critically examine, evaluate, compare, as well as suggest alternative solutions as a result of their findings.***
***Keywords: Design, integrated design, parti, literal translation, analogies, metaphors, essences, ideals***

**Objective**

- To assess the understanding and perception of design processes at the elementary level
- The outcome of understanding at the basic level
- Implementation of design processes to enhance the students' output

## I. INTRODUCTION

In most cases, architecture is conceptualized, planned, and constructed in response to the set of circumstances already in place. These criteria may be solely functional, or they reflect social, political, and economic circumstances in various degrees. Under all circumstances, it is presumed that the current set of conditions is not ideal and that a new set of conditions-a solutionis required. Problem-solving or design process is part of the act of producing architecture.

During the design process's first step, a challenging condition must be recognized and a solution must be found. The design above all is a deliberate undertaking, a purposeful effort. First, the designer must identify the circumstances that are already there, describe the context, and gather important data so that it may be assimilated and evaluated. Once a design is completed, it is important because the nature of a solution is susceptible to the perception, definition, and articulation of a problem. The Danish scientist and poet, Piet Hein, has summarized it in this way: “Art is solving problems that cannot be formulated before they have been solved. The shaping of the question is part of the answer.”

When designers are faced with an issue, they almost always see potential answers before they even know the question, and the depth and breadth of their design vocabulary affect their conception of a question and the resolution of its response. It is implied that those who lack a complete understanding of a design language have limited creative potential.

### *A. Design*

The practice of creating ideas that transform something that currently exists into something better is referred to as design in the domain of architecture. The design process may be categorized as a three-step procedure, consisting of an initial state, a method or procedure of transformation, and an imagined future state. These components also define the functions of the architectural designer-to identify problems, identify methods for achieving solutions and implement those solutions. In more practical terms, these functions are programming, generating alternative building designs, and implementing plans.

### *B. Design in Education*

Although the design is a broadly based activity touching everything from the visual arts to engineering to business management and the study of logic, the potential for a unified introduction to design is usually unmet. Most art schools have so-called basic design classes that everyone – including painters, ceramists, and sculptors-takes. These basic classes introduce a series of fundamental visual and problem-solving experiences. At some schools, architects, landscape architects, product and industrial designers, and interior designers join the art majors in the same design program. More typically however the basic design courses for architects are taught within architectural schools.

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*C. History of Integrated Design Education*

The model for an integrated design education was pre-World War II SCHOOL in Germany called the Bauhaus. The Bauhaus teachers conducted an initial workshop and visual studies program for all the arts. Architecture, painting, dance, and theatre students share the basic design experience. The teacher and the curriculum had a tremendous influence in the United States through the immigration of its faculty to the United States during and after World War II. Ironically, while Frank Lloyd Wright, THE great American architect had little influence on architectural education in the US, the publication of his work in Europe greatly influenced many designers there who had started in the Bauhaus.

*D. The History of the Beaux-arts System*

The Bauhaus was in part a reaction to the traditional approach to architectural education offered by the beaux art system of France. The Beaux-arts system with its initial studies of the classical styles had its origin in the 1800s and continued in France and the United States as the predominant form f architectural education until the mid-1950s.

The beaux-arts system differed dramatically because it highlighted the analysis of historic architecture as a pattern for future architecture rather than the study of abstract principles as the basis for architectural design. The beaux art handled two areas: maintaining and improving the authority of historical styles and designs while the Bauhaus promoted a search for unique solutions and forms that reflected both the type of building designed and the materials and method of construction. Typical Beaux-arts student projects were designed to built-in stone while student designs at the Bauhaus were to be built in concrete, steel, and glass. Both schools influenced architecture in the United States but the Bauhaus more clearly influenced architectural education in the mid-1950s and early 1960s.

*E. Changes Influenced the Architectural Education*

*1)* Less emphasis on the engineering aspects of architecture, less emphasis on structures, technology, and building design as the only core of architectural education.
*2)* The emergence of the study of human behavior as a basis for beginning architectural education
*3)* Traditional curricula try to ensure that each principle is understood before the student attempts to integrate social, visual, technical issues. The goal of total immersion is just the opposite; the students are first taught through experience to appreciate the problems and the excitement of an integrated experience to prepare them for subsequent coursework in which the principles are taught.

*F. Skills*

A designer should have a broad understanding of problems and techniques, as well as a diverse collection of distinct skills that are required to apply that knowledge to a given project. While knowledge, feelings, and point of view are critical aspects of design, they are different from skills knowledge is supported by skill but skills do not substitute for knowledge.

*1)* Graphic Skills: Include not only architectural drawings but include model building, printing, photography and the graphic arts, perspective drawings, and slide or graphic presentations
*2)* Intellectual skills
*3)* Self-criticism

## II. DESIGN PROCESS

The initial part of the design process is used to describe the design progressive process of assessment, synthesis, and refinement of design concepts. This article presents a design issue and solution as a hypothetical illustration of how the design process works.

Suppose that you were asked to design an outdoor area for a small townhouse apartment. You would undoubtedly need to inventory the elements of the problem area and then evaluate them in terms of their potentials and constraints.this is often referred to asthe site analysis. The evaluation however should include not only the physical site analysis but also other variables that relate to the design solution such as the needs of the townhouse residents, maintenance, legal regulations, neighbors, etc.

All of this information then needs to be collected or synthesized to create possible design alternatives. Synthesis of this information represents the creative design “battlefield” mentionedearlier. This is where potentials and constraints are pitted against each other to develop reasonable approaches to resolving the problem.

Once you have developed several alternative approaches to design you will need to refine those alternatives to select those that resolve the problem most effectively. The more you refine your ideas however the more you will need to synthesize your information and evaluate your results thus the cycle continues.

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The five-step design process

*1)* Initiation
*2)* Preparation
*3)* Proposal making
*4)* Evaluation
*5)* Action

A Diverse Range Of Design Process

| Five-step design process | R.Whitaker's eight-step design process | H.Rittle's summary of the design process | J.C.Jones's design method | AIA basic and supplementary services | Guenter and Corkill Systematic Approach to Architectural Design |
|---|---|---|---|---|---|
| Initiation/imbalance | • Recognition<br>• Definition | identify the problem | Idea | | • Basic definition<br>• Prelim program |
| preparation | • Preparation<br>• Analysis | • Collect information<br>• Analyze information | • Information<br>• Analysis | Predesign services | • Investigation,analysis<br>• Program abstraction |
| Proposal making | Synthesis | • Creative leap<br>• Work out solution | Synthesis | • Schematic design<br>• Design development | • Synthesis and development<br>• Volumetric design proposal |
| Evaluation | Evaluation | Test solution | Evaluation | | Reevaluation and modification |
| Action | • Execution<br>• Reevaluation | Communicate and implement | optimization | • Contract document<br>• Bidding<br>• Administration of contract<br>• Post design services | |

## III. DESIGN PHASES

Because the design process does not have a set beginning or end just recycling of information and ideas, it is difficult to try to describe the design process step by step. There are, however,several design phases that help to structure the process and which usually occur in a sequential pattern. You will remember these phases from the introductory diagram: analysis, program, and schematic and design development.

The initial phases are related to conceptual designgraphics and the communication of ideas among interested designers. Graphics at this level of design development are thinking graphics. Illustrations and rendered detailing are needed only to the extent that they enhance that thinking process. Concern for details, without proper evaluation, synthesis, and refinement of basic design and environmental principles may result in energy exhausted on a poor design solution.

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### A. *Analysis Phase*

The analysis of the design problem is important in determining conditions and characteristics of the situation that may influence the final design solution. the analysis may include information about the physical characteristics of the site such as geology, geography, climatology, spatial configurations, etc. it may include information about human or wildlife characteristics that are related to the site such as relationships between individuals and groups, physical and psychological needs, etc. it may even include legal and economic information, such as zoning and building ordinances or capital and investment financing.

### B. *Program Phase*

A very important phase involves defining the goals and objectives of design proposals. Often called collectively the “program”. It gives meaning and direction to the design process and serves as a yardstick for measuring the progress and development of the design ideas.

During the first stages of design, the program may vary generally in definitions. However, as the design advances and more information are available, it is helpful to also refine and develop the program itself. This way you will have more specific parameters about which to structure your design solution.

The developments of the program like the entire design procedure may require certain “give and take” decision making. For this reason, learn to utilize design – graphics in your decision-making processes to visualize potential design outcomes.

### C. *Schematic Phase*

The schematic phase is difficult to pinpoint relative to its place in the design sequence. Most likely begins as soon as the design problem is conceived. It refers to that phase of design where potential approaches and solutions begin to take shape, mentally and graphically. It describes the initial development of design alternatives, often called schematics or concepts.

### D. *Design Development Phase*

The development phase will require decision-making and creative intuition to refine those ideas with the most promise of success. The design development phase is just one step behind the finalization of the design solution. It implies the designer is readyto present the ideas for the review of other interested persons such as the client or the public. It does not however mean that it is the end of the design process.

## IV. CONCEPTS IN ARCHITECTURE

The primary definition of a concept is an expression that describes how concepts combine elements to create a whole. These components may be ideas, concepts, observations, as well as thoughts in the context of this text. An idea presented in architecture relates the functional needs, context, and beliefs to come together in a particular manner. Thus, the concepts of architecture are an essential element of design. This paper explores the place of concepts in architectural design, including the 5 types of concepts: metaphors, analogies, essences, ideals, direct response (and problem-solving).

### A. *Concepts*

Concepts do not have to be invented by the architect. Probably the best example of a response to a concept already stated in the client’s program is a design of Le Corbusier for the Carpenter center of the visual arts at Harvard University. The Center for the visual arts is an undergraduate division of the university and is open to all students, not just art majors. The concept in the program was that if more students were aware of programs and if they could see the activity and life of the center, then they would be more likely to enroll in the center’s classes. LeCorbusier’s response was to make a ramp out of a pedestrian circulation path that already passed through the site, to have it tunnel through the middle of the building, providing views into many of the studios and workshops.

Six synonyms related to searching for concepts have been used by different designers, such as architecture al ideas, super organizing ideas, themes, parti and esquisse, and literal transitions.

Architectural **ideas**are concepts that were reduced to a formal architectonic concern likespace, daylight, integration of structure and form, sequences of spaces, and sitting in the landscape. A building's overall design may be influenced by each one of them. The design choices are then based on the architectonic concern, an idea or pattern that recurs throughout a project's design is termed "theme." It may be quite specific, such as a geometric pattern that extends throughout the project, or it may be more general. His work, according to Moore, involves finding the best method to develop each of many topics or concepts that spark his attention. Louis I. Kahn's Kimbell art gallery in Fort Worth, Texas, has a booklet entitled "Light is the theme". Kahn argues that the changing mood of daylight over the seasons, as well as during a single day, is the key to complementing a great work of art. In designing the gallery he concentrated on bringing that changing quality of daylight into the building.

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The term "super organizing ideas" refers to the overall geometric configurations or hierarchies that components of projects should adhere to. Examples of how a general organizing pattern is created in urban design and campus planning are readily available and the pattern filled in a super organizing idea allows variations among the parts, just as long as they reinforce the overall pattern. Thomas Jefferson's plan for the University of Virginia's campus is an excellent illustration of this. A major aim of this concept was to provide enough structure to the pattern to allow each component to develop its unique idiosyncrasies while yet supporting the overall pattern as a whole. However, the various homes in Jefferson's plan all have their own distinct identities.

The design of circulation in large projects sometimes constitutes the super organizing idea. In the case of the Air and Space Museum in Washington, D.C. by Hellmuth, Obata, and Kassabaum the decision to develop the scheme around a circulation pattern proved to be a wise one because the number of visitors has exceeded peak predictions.

The parti (scheme) and esquisse (sketch)the conceptual and graphical results of a specific style of instruction established in the Beaux-Arts Schools of France during the 19$^{th}$ century. Students were required to acquire conceptual skills at a high level to be successful with this approach. This meant they had to come up with an idea and basic design of the building layout within the first few hours and continue with it afterward.

Literal translation Edward Larrabee Barnes coined the term to express the aim of creating an idea and diagram that may serve as a simplified project plan. A project's idea, according to Barnes, should be able to be expressed in a simple drawing on a napkin. If the structure is completed, that original diagram should be just as apparent and recognizable as it was on the napkin.

The idea is the opposite of the concept since it does not pretend to be suitable. A notion for the design of a birdcage at a zoo might be that of a bird in flight.

## V. CONCEPTS AND ARCHITECTURAL DESIGN

Concept generation is not an automated process. It takes a great deal of effort to create an idea that combines elements that have never been put together before. Designers, critics, architects, musicians, artists, and authors have recognized that bringing things together is a creative process that takes approximately 10 percent inspiration or creativity and 90 percent hard work.

Three issues impede the development of conceptualizing skills. The first block is devoted to communication issues, the second to inexperience, and the third to generate hierarchies and their effects.

The first problem the student encounters is communication. Strangely, expressing our thoughts to others isn't the most challenging part of communication but expressing our thoughts to ourselves is the most challenging communication task. Graphic communication is another communication issue that affects idea formation. Ironically, many students are hesitant to sketch as part of their process of developing concepts. To be constructed, everything in architecture must be sketched, and drawings account for half of the contract papers for construction.

The second problem area of unfamiliarity is an extension of the first. Unfamiliar architectural concepts are tough to come up with. Given the fact that many buildings are constructed without regard to a conceptual framework and that the majority of critics and architects avoid writing about such structures, for a beginner designer, it is quite simple to have no aspirations for concepts and little knowledge of their function in building design.

The third problem area can be simplified as the problem of identifying appropriate hierarchies. This is a particular issue for starting students, who, due to their lack of experience, are unable to determine if an idea is great or awful.

## VI. FIVE TYPES OF CONCEPTS

Five kinds of concepts exist metaphors (looking at abstractions), analogies (looking at their things), programmatic concepts (looking at the stated needs), essences (looking beyond the programmatic requirements), as well as ideals (looking at universal values).

### *A. Analogies*

Similarities between objects are identified through analogies. Something is recognized as having all the required qualities, and it becomes the model for the project.

Ex.

*1)* Gothic was the appropriate model for churches, colleges, and universities;
*2)* Greek Doric was the appropriate model for capitols from Washington, D.C. to Madison, Wisconsin.
*3)* The street or a covered shopping street like the Galleria in Milan.
*4)* An example is Diamond and Meyers' use of both a village street and the galleria as an analogy for the design of a building for the University of Alberta in Edmonton that combines a student union with married students' housing.

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*B. Metaphors and Similes*

Like analogies, metaphors establish correlations between objects. The associations, on the other hand, are abstract as opposed to literal. As a metaphor, similes utilize the terms "as" or "like" to describe a similar connection.

Charles Moore, in a discussion of his interests, suggested that he likes buildings to be like geodeshe develops that metaphor in a brief scenario. Thegeodes area conceptual metaphor that suggests hoe the building could have two simultaneous images. When viewed from the outside, the building could have an image that would match the image of the neighborhood.it could have a different image on the inside, such as an entertaining, theatrical, and dramatic environment appropriate to a resort.

*C. Essences*

Essences condense and compress elements of more complicated problems into concise, direct remarks. To get insight into the most essential and fundamental elements of an object, one must first determine its essence. An essence statement may also come from finding and identifying the underlying causes of a problem.

The work of John Portman of Atlanta illustrates another version of the search for essence. Portman's most famous building is hotels with dramatic, innovative interior spaces. As concepts, they integrate image, interest, function, and –whenever possible- an urbandesign plan for the city in which they are built.the proof that they capture the essence of a hotel is their popularity.

*D. Ideals*

Instead of looking within an issue or at a comparable problem to find suitable ideas for it, ideal concepts are those that architects bring to a challenge. They are recognized for their brilliance when they provide the appropriate concept to the project. As a result, their fundamental competency is questioned when their approach is inadequate. Architectural ideal concepts are the architect's greatest ambitions and objectives.

*E. Nature of Design Process*

J. Christopher Jones said in his book,1980(Design Methods: Seeds of Human Future) that the design process is not the same as the process of developing butthe significance of these introductions and the ultimate structure, on the other hand, is determined by three main processes:

1) *First, Acquire Information:* The gathering of information, organization, and analysis, as well as the integration of such information into the imagery, are all included.
2) *Second, Testing:* Involve the designer's intellectual skills, intuitive abilities, and personal experience in the design decision-making process.
3) *Third, Evaluation Process:* Consider whether or not these choices are in line with the design issue.

"Design" is a very complicated activity that involves two different kinds of intellectual processes, according to the designer:

- *Unconscious Intellectual Activities:* Designers' intellectual and creative skills are affected by these factors.
- *Conscious Intellectual Activities:* The rationality and logical skills of the designer were involved.

Intellectual ideological approaches for the design process

It refers to the designer's approach to solving a design issue intellectually and in terms of intellectual approaches, there are three main categories: (Jones, J.Chritopher, 1980):

- *The Logical Rational Method:* Christopher Jones termed this method "glass box" because it assumes that the design process is logical and may be described(Alexander, Christopher, 1976).It relies on evaluating all the design issues and attitudes to a series of smaller problems and initial molecules that are readily analyzed to basic components and solving each portion individually and then assembling all molecules once again properly to produce the optimal solutions.
- *The Creative Intuitive Model:* As a result of the designer's "black box" creative thinking, Christopher Alexander's patterns have grown more versatile and customized, Where the designer's more creative ideas reside, unconsciously, inside the black box holding the designer's knowledge as well astheir earlier experience.
- *The Participation Collective Model:* Users or group designers may be activated in the design process using this method, which builds on prior approaches and emphasizes the importance of user involvement and users must be able to make decisions, and several techniques, including questionnaires, have been employed to help them do so (Jenks,Charles,1991).

We may infer from these three methods that the architectural design process is situated on a linear scale between two opposites, artistic as well as scientific processes and that this fact is significant, (Peterson, John, 1980) as demonstrated here, one of them considers this procedure as totally opaque while the other regards it as fully transparent.

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## VII. NATURE OF SOLVING A DESIGN PROBLEM

Throughout the design process, various kinds of thinking are required due to the complexity of the problems at hand. Design problems need a combination of analytical thinking, creative thinking, and the use of problem-solving methods (such as the use of sequential processes). Many variables influence the structure of the design process, from conventional to creative to innovative (Peterson, John, 1980):

*1)* The quality of design issuescan be identified from the outset to enforce particular solutions.
*2)* The nature of the content, whether the surrounding structures are in a natural or physical setting are important considerations.
*3)* Capacity, expertise, and a self-inventory of knowledge for the design that concentrateson the creative aspect.
*4)* Participants in the design process (users, owners, as well as specialist authorities are all involved in the process)

## VIII. HISTORICAL SUMMARY REGARDING THE DESIGN PROCEDURE

### *A. The Traditional Visualization Of The Design Procedure*

In addition to many theorists that have written on the design process phases, one educational institution that focuses on the disclosure of the design process stages andnature is the Royal British Institute of Architecture and "two-dimensional process" was their description of the design process, as demonstrated in: First, there is the sequential design process, followed by the decision-making phase.

### *B. The First Dimension (The Sequential Phases Of The Design Process)*

A vertical timeline formulation represents the sequential phases of the design procedure from recognizing the problem andlet's now move on to the project's execution stage.There have been many studies of the design process conducted by architects as well as theorists, intending to identify the major sequential stages that architects should follow to produce effective architectural results. Many other architectural models were proposed for the phases and sequences of the design process. Here are a few that were suggested by architects:

*1)* *Asimow's Model 1962:* He divides the architectural design process into the following phases (RIBA handbook, 1973): primary requirements, preliminary design, detailed design, feasibility study, planning for distribution, planning for production, consumption planning as well as project delivery.
*2)* *RIBA's Model:* There are twelve phases in the design process, which are divided into four major stages, according to the royal institute of British architecture (RBA, 1967):
*a)* The briefing (inception-feasibility study)
*b)* sketch planning (overview of proposed sketch design)
*c)* working drawing (detailed design, information production, tender action, bill of quantities)
*d)* site operation (planning of project, on-site operation, completion, review)

### *C. The Second Dimension (The Decision-Making Process)*

Decision-making is horizontally formulated at each step of the architectural design process, with repeated courses(analysis, evaluation decision making, synthesis).

*1)* *Archer's Model:* The decision-making process is divided into several phases in this model:(brief-programming, collection of data, analysis, synthesis, development, communication, solution).
*2)* *Laseau's Model:* According to Paul Laseau, the decision-making process consists of six consecutive stages: (problem definition, gathering data, developing alternatives, evaluating alternatives, selecting solution, communication)

### *D. The Architectural Process Between Creative And Traditional Processes*

Processes of design may be divided into three categories: creative, innovative,and traditional. Two kinds of design thinking exist on the other hand:A comparison of the implicit and explicit approaches will be made based upon their underlying concepts, their respective processes, and their respective effects.

*1)* *The Implicit Approach*
*a)* *Concept:* Design is a detailed and innovative process. It is ambiguous and comes from the designer's unconscious mind.
*b)* *Process:* The greatest way to learn about design is by observing. His work will become more complex as his sensitivity develops.
*c)* *Effect:* Implication, or recognition based on intuition, is the greatest way to teach the design process.

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*2) The Explicit Approach*

*a) Concept:* Design' is only valid extent as it completely tackles the issues that deliberately underlie the process.

*b) Process:* Problem-solving begins with questions, which are then followed by answers. What's the basis of the project? What is the program's underlying ideology? What is the project's design concept?

*c) Effect:* Careful analysis must lead to a greater degree of knowledge. A critical judgment is based on this principle

## IX. NEW MODELS OF THE DESIGN PROCESS IN THE CONTEMPORARY ARCHITECTURE

The design process is not sequential as it is in traditional design methods (typically begin with analysis, then go on to synthesis, and then conclude with evaluation), as a result of the new design methodologies, various modes of thinking may be used at any step of the design process. There are two distinct approaches to the design process in contemporary architecture that will be examined in this section:

*1)* Academic model for a design approach

*2)* A practical model for a design approach

### *A. Academic Model For A Design Approach*

As a part of the study, the author examines different teaching/learning methods and evaluates the academic perspectives on design thinking techniques in contemporary architecture; In their teaching/learning models, a select few methods recognize the student-teacher relationship.To teach architectural design studios, this research created a thinking technique that integrates three kinds of thinking: initial, logical, and originative thinking. An interactive process of thinking is required to use multiple models of thinking and apply flexible design methods at different phases of design to create a suitable solution, according to the model.

### *B. Initial Significant Thinking Approach*

The basic thinking is a key processing mechanism in the designer's head, as well as an archive of knowledge and pictures. During the design process, it is regarded as the most essential component of the thinking process. A wide range of information is available including Designers' previous experiences, their surroundings, pictures they've seen earlier, and also new information they seek as well as gather during a design process are all considered, basic thinking method may be described as a portion of recognized knowledge that is responsible for providing a solution at this level of problem-solving.The model of the design process, includes issue solving, designing, and decision making (Mahmoodi, 2001).

*1) Problem-solving:* Problem-solving requires students to gather knowledge and formulate the problem as its whole, while also detecting and studying the issue at hand.Seek alternative solutions and new ideas to these problems. The last step is to choose a solution.

*2) Designing:* Part of this is conceiving and creating an end-goal and focusing on it,Students must come up with a new way to find solutions. And create more detailed criteria for assessing the work-in-progress, if possible. Lastly, the product has been revised.

*3) Decision Making:* These students must come up with other design ideas, evaluate the implications of their choices and examine their visual selections aboutthe final product. Decision-making that is not primarily driven by personal preference, followed by an evaluation of the choices made.

### *C. Logical Thinking Approach*

It is possible to describe logical thinking as the use of recognized knowledge to comprehend a situation. The model of the design process includes analyzing, comparing, as well ascriticizing.

*1) Analyzing:* Student's verbal thoughts must be represented visually and spatially.Making assumptions about the issue and categorizing the gathered data are two of the most important tasks.When attempting to solve an issue or discover sequences, students must define their main goals. Students should keep track of all their design concepts and elaborate their ideas on them.

*2) Criticizing*: for students to establish criteria for evaluation of their work. While instructors will be evaluating students' work, students should also be establishing some key criteria for providing a solution. To create solutions, students must be able to identify misconceptions and flaws. Students should also validate their solutions for accuracy.

*3) Comparing:* To solve all design issues, students must compare their approaches with others and create logical solutions. Afterward, the students must compare their solutions in terms of relative success. As well, students must be able to identify the causal factors that influenced their thinking.

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## X. CREATIVE THINKING FOR IDEALIZING SOLUTIONS

During the design process, the right hemisphere, which is responsible for intuitive, visual, and simultaneous thinking, is said to be dominant, the author describes creative thinking as information that is produced and used to idealize a solution (Mahmoodi, 2001). In his model of the design process, he synthesizes, elaborates, and visualizes the process. Following is a list of activities that students and design educators should consider throughout the design process to encourage creative thinking.

1) *Synthesizing:* To create design ideas, students must adopt certain design types that will aid them in generating solutions, as well as some design methods to assist them to practice their design ideas.
2) *Elaborating:* Students must be able to build on their initial ideas and alter both their original and recently developed ideas to build upon the ideas of others. Therefore, they may be able to change their views and perspectives and not cling to one concept to create specific ideas.
3) *Imagining:* So that they can envision and hypothesize about potential solutions, students must acquire fluent reactions when faced with a challenge. In addition, they must have confidence in their decisions and conclusions.

### A. *Practical Models for Design Methodology*

We'll take a look at some famous architects' views on the design process for modern architectural projects, by evaluating their quotations, assessing their knowledge backgrounds, and comprehending the tools they used to create the final products. And all these factors are related to each other.

## XI. CONCLUSION

1) Knowing what you want to design is the first step in the process. Developing tools= “codex rules and invention”.
2) The prominent contemporary architects' design process consists of three major stages:

a) *First Phase: knowledge:* In the design process, knowledge is the basis. All of us, as architects and designers, have a responsibility to stay abreast of what has been created in the past and what is being designed now.
b) *The second phase-developing tools= codex rules:* Tools to evaluate and "understand" buildings should be developed...We need tools to deal with the abundance of architectural data.
c) *Third phase: invention:* A high-quality and innovative architecture is only possible once we have developed the necessary tools to execute our design idea, or "invention." The development of a new architectural language and spatial idea.

3) There are two kinds of intellectual activity involved in the design process: unconscious and conscious intellectual processes.
4) Conventional design methods tend to proceed sequentially through the design process (typically begin with analysis, then go on to synthesis, and then conclude with evaluation)
5) As a result of the new design methodologies, various modes of thinking may be used at any step of the design process.
6) Diagram showing how to be inspired deliberately by utilizing various knowledge backgrounds and inspiration sources (toolbox) to create inspiration method tools= codex rules.
7) A complex thought process is regarded as a combination of three different kinds of thought: critical and creative as well as content/basic thinking.
8) The “conscious inspiration method” consists of three major phases: knowledge, developing designing tools=codex rules”. And invention.
9) Natural architectural design development is based on inspiration methods…=codex rules.
10) We don't need to be frightened to be inspired by relevant buildings when we use the "conscious inspiration" approach.
11) A distinctive design approach will emerge as a result of drawing inspiration from existing structures.
12) It's just a matter of time until we're able to create a high-quality, innovative architecture.

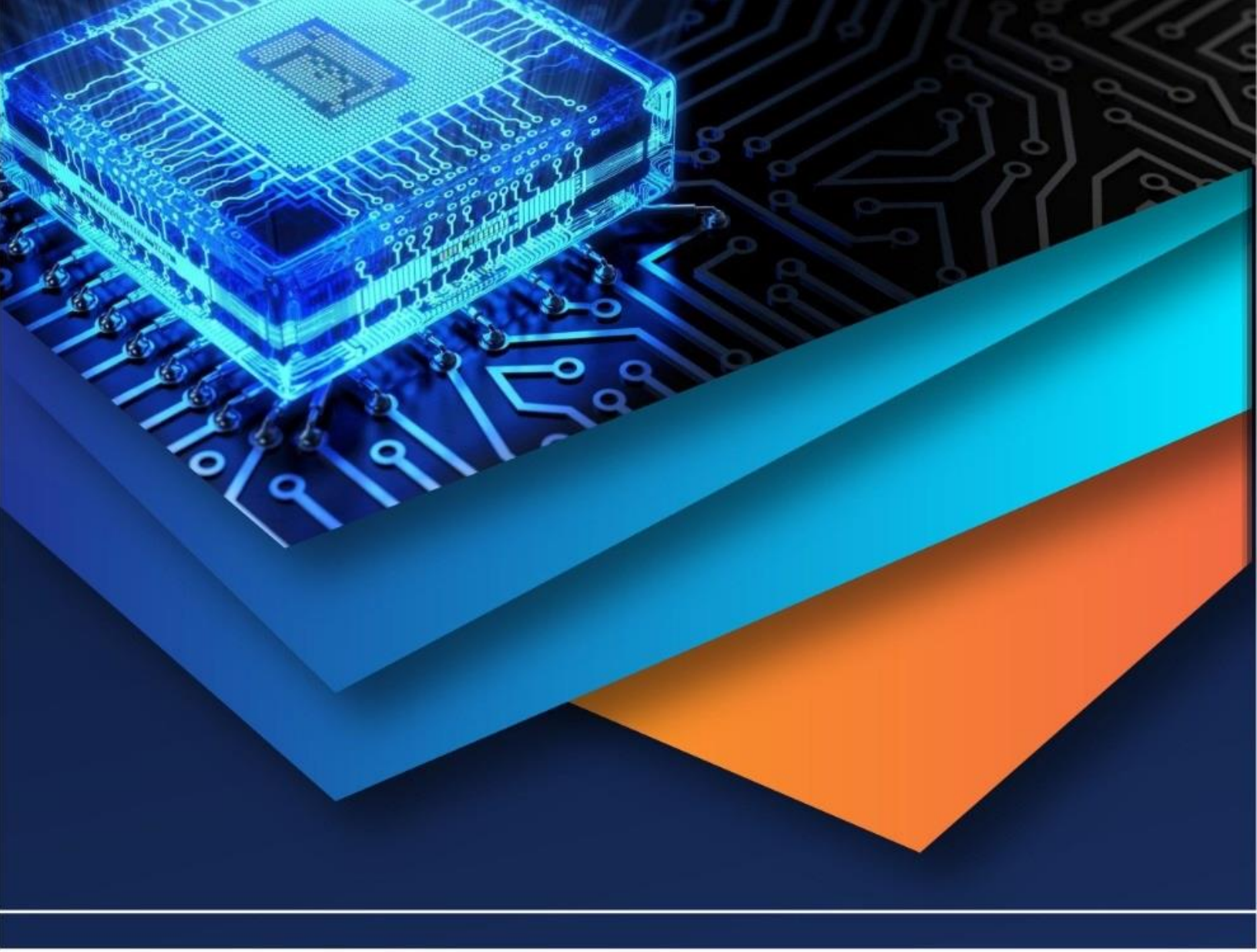
## REFERENCES

[1] (RIBA), r. i. Handbook of Architecture & Management, the RIBA.
[2] Alexander, C. (1964). Notes on The Synthesis of Form . Cambridge, mass: Harvard University Press.
[3] Alexander, C. (1976). Notes on the synthesis of form . U.K.: Oxford University.
[4] Amheim, R. (1969). Visual Thinking Berkeley. Uiversity of California Press.
[5] Arieti, S. (1976). Creativity: A Magic Synthesis. New York: Basic books.
[6] barnes, e. l. walker art center.'.
[7] Barry, D. Y. (2000). Critical Thinking forArchitects :Developing a Project Premise and Concept.
[8] Bazjanac, V. (1974). Architectural Design Theory : Models of the Designprocess.in basic questions of design theory. New York: American Elsevier.
[9] Chermayeff, C. A. (1963). Community and Privacy. Garden city N.Y.: Doubleday and co.

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[10] Chig, F. D. (1979). Architecture: Form, Spce and order. NY: Van Nostrand Reinhold.
[11] Ching, F. D. (1996). A Visual Dictionary of Architecture. NY: Van Nostrand Reinhold.
[12] Heyer, E. L. (1960). Architects and Architecture. New York: Walker and Co.
[13] jones, J. (1972). Design Methods. London: John wWiley and Co.
[14] Kay, J. H. (1974). Sizing up Boston Architects. Boston Magazine.
[15] L.B.Archer. (1970). systematic method for designers. (G. Moore, Ed.) MIT press.
[16] Larrabee, E. (1971). Walker Art Center"Design Quarterly.
[17] M.Nathenson, N. a. (1981). Design methods and learning methods , In R. Jacques and JA powell ed.
[18] MacHarg, I. (1969). Design with Nature. Garden city N.Y.: The Natural History Press.
[19] Mahmoodi, A. S. (1119). The Design process in Architecture-A pedegogic approach using interactive thinking. UK: PHD ,University of LEEDS.
[20] Moore, C. (1976). self portrait. L,Architecture D'Aujord'Hui.
[21] P.Carolin. (1992). Expectation versus Reality in architectural educationin F. duffy ed. strategic study of the profession phase1: strategic Overview. London: RIBA publications.
[22] Peterson, J. (9191). Information Methods for Design and Construction . N.Y.: John Wily & Sons.
[23] Roche, K. (1973). Conservation with Architects. New York: Praeger Publishers.
[24] Wade, J. (1977). Architecture,Problems and Purpose. New york: John Wiley and Sons.
[25] Wright, F. L. (1960). Frank Lloyd Wright:Writings and Buildings. New York: Meridian Books.

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