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Original Research Article

An Analysis of the Design Process of the 2 nd Generation of Leading Architects in the Post-Islamic Revolution of Iran

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Abstract

Problem statement: The contemporary architecture of Iran and the works formed in its context are the arena of representation of the current thoughts and discourses of Iranian society in this era. By reading the works of architecture and the resulting knowledge, one can get a proper understanding of the worldview that governs the platform. The problem of the research is to strive to answer the knowledge gap about the lack of registration of tacit knowledge that is created in the Intermediate of professional and academic education, to provide an opportunity to analyze the trend of the progressive architecture of Iran and to investigate the interaction of the professional platform and the progressive trend.

Research objective: The present research attempts to study and analyze the process capitals in the offices of the 2nd generation of leading architects after the revolution in Iran and to document and match them with the processes and methods known by process researchers, to record the concrete knowledge available in these offices, and the impact of quality of utilization of these processes. processes. The purpose is to gain knowledge of the process of upgrading and optimizing the design processes in the architectural offices of the second-generation architects' post-revolution of Iran.

Research method: This research is qualitative research employing the grounded theory method, and, it uses library-documentary and field methods in data collection. Finally, the data analysis was carried out using MAXQDA software version 2020.

Conclusion: The results show that Iran's professional society is transitioning from intuitive thinking to analytical thinking.

Keywords: *Design process, Architectural design, Koberg and Bagnall theory, Leading architects, MAXQDA.*

Introduction

The contemporary architecture of Iran and the works formed in its context are the arenas of representation of the current thoughts and discourses of Iranian society in this era. In fact, by reading the works of architecture and the resulting knowledge, one can get a proper understanding of the worldview that governs the platform.

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The importance of this issue will be doubled when architecture is recognized as the medium of understanding this platform. Architectural reading, regardless of the factors affecting it, is an undeniable shortcoming.

Therefore, Studying Iranian architecture without paying attention to the processes of its formation will impair our knowledge. The studies of the last few decades, despite the reliance on the design practice on the processes, have mostly beena process research approach and in an abstract form. Few researches have been done in the professional society with an expert research approach, and the few existing experiences are often focused on the works and not the processes (Rezaei, 2014a). This way of facing the issue has caused the need to address the professional community to get out of the abstract space and ways of applying processes and methods in the professional space, to be felt as a gap. This way of dealing with the subject of the process causes knowledge to go out of its practical state. In the other form, it means the priority of the effect over the process, will lead to the spread of a kind of minimal and product-oriented view in the process of architectural design. During the past decades, some architecture offices, which have focused more on intellectual processes, have tried to take a step towards the development of architectural literature by relying on these processes. These offices have had an important impact on the flow of Iranian architecture and leading architecture. It seems that according to the existing mechanisms, the distinguishing aspect and the influencing factor of the progressive offices on the architectural trend should be sought in the design processes governing these offices and the way they face the problem. During the past years, efforts have been made in relation to the discovery of the stages governing the design processes and their structural order. Their common point is the lack of attention to professional environments and how to use processes by expert professionals. It is necessary to address such a problem due to such research can first of all investigate the acquisition of different design methods in the trend of the leading architecture of Iran. In the next step, the effect of the implementation and application of design process steps and the methods of modification and adaptation for Iran's architectural context should be researched. Finally, it tries to gain a better understanding of the methods of configuring the process in the architecture of the progressive discourse-making offices, especially the post-revolutionary offices in the contemporary architecture of Iran, which can be registered and reviewed at the moment. The problem statement of the research strives to answer the knowledge gap about the lack of recording of tacit knowledge in order to provide an opportunity to analyze the trend of the leading architecture of Iran based on the design process and to investigate the interaction of the professional platform and the trend. This issue is formulated in four fields: awareness, process, historical evolution, and profession.

Basically, part of the research is faced with a problem in the field of knowledge and awareness because the researcher is dealing with something internal and the success of the researcher depends to some extent on the level of self-awareness of the architects in their processes. The problem has process aspects as well, due to the fact that it monitors the previous work and analyzes the process of its creation. Historical aspects are also effective on this knowledge platform because they show the historical coordinates of Iranian architecture and determine the relationship of the professional community with the contemporary history trend. Finally, the problem has a professional dimension, because the response of professionals in Iran to the historical, social, political, and economic situation of a developing country has a bilateral effect on the design process. The present research tries to study and analyze the process capitals in the offices of the 2nd generation of leading architects' post-revolution in Iran and to document and match them with the processes and methods known by process researchers, to record the concrete knowledge available in these offices,

the impact of the quality of utilization of these processes. The purpose is to gain knowledge of the process of upgrading and optimizing the design processes in the architectural offices of the second-generation architects' post-revolution and to adapt them to the architectural context of Iran. Studying the design processes governing architectural offices, paying attention to their points of commonality and difference and finally comparing the process followed with the results of the processes can show a more accurate image of the strengths and weaknesses of Iranian architecture. Finally, such knowledge can be effective in the efficiency of architecture education. The meaning of architects of the second-generation post-Iranian revolution is architects who were accepted into universities after the Cultural Revolution. By defining intervals the nearly twenty years for each generation, the second generation of architects are those who, by establishing their offices in the 90-2000s, have been able to play a role in advancing the discourse of architecture with persistence in the matter of design.

1. What is the process of design among the 2nd generation of leading and influential architects in response to the contextual issues of architecture in Iran?

2. How do they adjust and modify the design process to address the necessities of the Iranian context?

Research method

Qualitative methods were used to identify architectural design methods in architectural offices and to establish a direct relationship with architects. For this reason, this research can be considered qualitative research based on the grounded theory studies framework.

The grounded theory is formed by relying on the collaboration and application of research by participating groups. The researcher basically allows a conceptual order to emerge from the data collected (Mohammadpour, 2018). Therefore, in studying the design process, considering the subjectivity of the studied phenomenon, it is necessary to use inductive reasoning and the bottom-up method. Grounded theory can lead to a strategic view of the state of progressive architecture and strengthen understanding (Corbin & Strauss, 2008). This research consists of three main steps. In the first step, the issue of data collection and its methods is that the library and documentary methods were used to collect basic studies and provide definitions and literature review; in the next step for field studies, the research was continued by identifying the elite part of the architectural society post-revolution as the statistical population.

To identify the statistical population and select the subject of study for interviewing with the monitoring of awards and competitions at the national and international level in the period of 2006-2019, and content analysis and the use of statistical methods, an attempt has been made to identify influential architectural offices in the architecture trend. However, to be sure that the subjects of study represent the statistical population, criterion-based methods were used to choose the samples in the first phase and the snowball method was used in the second phase in the choice of experts. In the next step, according to the necessity of making bilateral dialogue between the interviewer and the interviewee to reach the mental and opinion fields that the designer uses during the design, and also, because each designer may have a special and somewhat personal reading of the concepts, an unstructured in-depth interview (open-ended) was chosen for the fieldwork.

In order to search for the architect's mental actions, the results of the interviews were analyzed using grounded theory and by using MAXQDA software version 2020. In the process of the interviews, all the interviewees were asked to refer to two works that consider the indication of the discussed process and are mesoscale in order to confirm the statements. The result of the above steps has been analyzed by comparing the known processes and during the process and measuring the monitoring between them, the form and number of changes in

the processes, and the effect of these modifications in the creation of works. Table 1 describes the steps of the research and its explanations.

In the present research, after identifying the statistical community of leading architects through correspondence by email and connection through social networks, an invitation letter was sent to 16 architects, of which 11 architects accepted the interview and 6 of them were interviewed. 5 people were interviewed in person, which was documented by two recorders and two cameras. An interview was conducted by phone, and the phone conversation was recorded and implemented. During all the interviews, got a permit to publish the interview text. In order to extract the processes of progressive offices, the questions listed in Table 2 have been used in all interviews.

- **Statistical population**

In the research process, an effort was made to design a rule that could be used to identify the statistical population of the research. For this purpose, the indicators that were determined to define the statistical population are: Continuous presence at the professional level, making a collection of works around which there has been more discussion in the professional space in a way that has led to the production of architectural literature, to ensure the correctness of the data choice method, it is possible to refer to the community of experts who have been selected by the judging panels of competitions and awards. In fact, in a high number of architectural events and with an average of 5 to 7 judges, when architecture is continuously present, it can testify to the existence of a meaningful pattern in the repetition of this phenomenon. The frameworks that are formed for professional presence include studios, offices, companies, and natural persons, which is the opinion of this research, and offices. Also at the level of individual design skills, one layer of which is related to student layers. The next layer is related to experienced people. The third layer is related to the layer of professional designers and the last layer is related to design experts, which is the subject of study in this research is the fourth layer. Given that the field of research is focused on the design process of influential architects in the second-generation post-Iranian revolution, the statistical population is defined as including male and female architects who were admitted to universities after the Cultural Revolution. By defining intervals of nearly twenty years for each generation, architects were included in the study circle who, by establishing their offices in the 90s and 2000s, have been able to play an important role in advancing the discourse of architecture with persistence in the matter of design. In order to be able to draw a framework in the research that has a distinction capacity of this influence and is based on expert criteria, an effort was made to monitor architectural competitions and awards from 2006 to 2019 with a focus on mesoscale projects. Architects who contributed the most, either as judges or as selected or honored, and played an inspiring role in the architectural community were defined as the statistical community. For this purpose, among the national and international competitions and awards, nearly 1543 competitions and awards were documented and analyzed. In the sampling process, to address concerns regarding the hypertext procedures present in certain competitions and to ensure the validity and reliability of the research, an effort was made to employ a dual approach in alignment with each other. In the first step, and specifically at the beginning of the fieldwork, to establish the sampling on a rational basis, the statistical population selected for this research is the offices of architects' post-revolution, which was defined through the quantitative content analysis of national and international competitions and awards. But the pilot project includes works of mid-scale, whether built or not, which are in Iran and have won awards at the national and international levels, were chosen in a non-probable way, and the researchers used two criteria: the most frequent presence of architects in events (meaning to be successful in the results, whether selected, nominated, commended, or referee) and also the desire was chosen to cooperate

Table 1. Research steps. Source: Authors.

1st step	2nd step	3rd step	4th step	5th step
Overview	Index extraction	Selection of offices	Reviewing the process of the offices	Analysis
The problem-solving design process of late second-generation architects	Components and steps of the design process	Identifying domestic awards Identifying international awards Identifying different award criteria, matching indicators with award criteria, and selecting offices	In-depth case study interview and study of works referenced in the interview	Identifying current methods Extracting mental actions

Table 2. Research questions. Source: Authors.

Origin	Questions (in-depth interview; interview questions were designed as follows)
Process	Describe the steps you go through during the design process. Among the limiting factors of architectural design, which do you consider to be the most effective?
Problem	How was your first interpretation of the design problem formed? What are your first steps to answer the architectural problem? What do you do to understand the design problem?
Profession	Has more weighting been given to some of the steps you mentioned in the professional environment? Has the design process in your office changed over time (from the time it was established until the time your office was developed)?
Group design	According to your experiences, how does the design process affect the management of a design office? What mechanisms do you have for evaluating the activities you do in design?
Criticism	To modify a design, how do you know which part of it needs to be modified? How do you measure the accuracy of your judgment about the quality of projects?

with the current research process. In the second step, to continue sampling, we try to use the snowball method, which is a non-probability method in qualitative research, and the future members of the sample will be selected by introducing former members. The sampling process, according to what will be done in the grounded theory method, will continue until it reaches saturation. An important point in the research process is that in order to maintain research ethics and avoid naming offices in the process, each member of the sample will be identified by coding with a code to avoid suspicions caused by mentioning names.

Literature Review

Addressing the issue of the research process and design methodology and the sparks of trying to conquer rationalism over empiricism can be sought after the birth of modernity.

Where researchers decide to reveal the mysterious face of design. What is important is the continuation of this effort and raising new questions for more optimal design methods in a continuous manner. In Iran, it is difficult to find experts who have founded a theory or a method.

But in the past few decades, research design has been one of the topics of interest in academic societies. These studies often review or categorize the theoretical foundations of Western experts. Most of the efforts that have taken place in the direction of process research in Iran are translations of the works of experts who have started process research since the 70s.

Among the most important books that have been translated into the Persian language in the past years, we can mention dual “How Designers Think” (Lawson, 2013) and “What Designers Know” (Lawson, 2016), which were published by Hamid

Nadimi et al, and it tries to define the design, the design problem, its steps. According to the author, Bryan Lawson, these two books together reflect his four decades of extensive design research. The importance of these two books is discussed in the first step in the literature review of design research and historical discussion in the field of design process, and then the description and expansion of Bryan Lawson's views and opinions as an architect and design researcher. In this context, Mahmoud Rezaei (2014a) wrote a book under the title "Architectural Analysis" which can be seen as a review of ideas and concepts in the process of form and space design. This book tries to review the history of the known processes and methods and categorizes the methods and processes, relying on the opinions of several experts, it introduces the design methods and finally criticizes the opinions of the experts and talks about the role of analogy as the central element of the methods. In the past years, the works of people such as Lang, Alexander, Cross, Jones, etc., have also been translated into Persian, which can be considered reliable sources in the field of the design process. Farhad Shariatrad (2014) in his doctoral dissertation entitled "The Design Strategy of Facing the Design Problem: In Search of Solutions to Facilitate the Development of the Problem Framing Ability among Architecture Students" has discussed the framing of the design problem and the effect of how designers face the problem on their design process. Another research in the field of expert research by the same author with the title "Investigation of strategies of Iranian designers in comparison with the general model of the creative leader in design" is also available. Table 3 summarizes the literature review.

Research Literature

• Concept of design

Design is a complex skill and it is not a talent that is given to people with unknown powers, but it is a skill that people have to practice and learn (Lawson, 2005). The subject design problem is often multi-dimensional and highly interactive; therefore, the components of the design subject often follow different goals, which must always create a single solution for a series of problems in the end (Lawson, 2013). The design themes until the pre-modern period have been mainly derived from the artist's inner excitement and less from a systematic effort. The pre-modern artist has created an original work with intuition. According to "Rainer Maria Rilke", the artist's method is so unrecognizable that even the artist himself/herself is not aware of it (Brawne, 2017).

Design method questions have been raised more post-modern times and have continuously found newer answers. Planned thinking infiltrated involuntary thinking and rationalism was placed next to empiricism (ibid., 2017). The importance of finding scientific methods in design led to the importance of graphic thinking in the design process, especially in architecture.

A generation of design methodology that Alexander is considered to be a symbol of was the result of designers' common concern about the inadequacy of design patterns. For this reason, the whole design process should be placed transparently in the touchstone of critical thinking. The model of the scientific method proved its irresistibility. Scientists revealed not only the results of their work but also their methods. Their work could be repeated and criticized and their methods were highly speculative (Lawson, 2013). The beginning of process research in a contemporary form should be sought in developed countries in the 1950s-1960s. The first issue about these definitions is that they are very different from each other. Almost only one-tenth of keywords are mentioned more than once. Another important issue is that none of them mentions graphic thinking which is a common work among all designers is. Table 4 shows the definitions of the design process from the point of view of experts.

The above definitions lend little support to the idea that design work is the same in all situations.

The methods chosen by the methodologists are as

Table 3. literature review of the research. Source: Authors.

Title	Author & Date	Method	Conclusion
Metaphor as an Extension of Deduction and Method of Architectural Design Reasoning		Logical reasoning	After discovering the core of the argumentative method behind designing, the researchers tried to develop this argumentative method, and finally, metaphor is introduced as an extension and development of deduction, which has its complexities.
Narrative Design as a Historical Technique (Case Study: Grand Mosque of Fahraj	(Aeini et al., 2021; 2022a; 2022b; 2023)	Qualitative method, intertextuality, logical reasoning	Researchers prove with an intertextual method that the design method can be used as a historical document in the study of architectural history. From studying the Prophet's Mosque as an example and comparing it with the Grand Mosque of Fahraj, they conclude that using the narrative method and the Prophet's Mosque as a source of inspiration for the Grand Mosque of Fahraj.
Problem Framing, Interdisciplinary Problem Solving Strategy		Logical reasoning	Problem framing, problem-solving strategy By comparing three macro-strategies of facing the problem from three different origins, the researchers try to move beyond framing as a strategy of facing the problem that has an origin in interdisciplinary the specialized literature.
Metaphorical Reasoning in Architectural Design and Construction		Logical reasoning	The researcher studies metaphor as an extension of analogy and tries to reveal its construction.
Exploring the Place of Nature Strategies in Architecture Design Process Towards Nature and Built Environment Symbiosis	(Olia et al., 2022)	Logical reasoning, case study, focus group	Researchers show that one of the requirements of the architectural design process is to have a strategy before reaching the final idea. The strategies introduced in this study are strategies inspired by nature, which increase the possibility of symbiosis and the identity of the designer with his surrounding environment.
Reviewing Design Process Theories: Discourses in Architecture, Urban Design and Planning Theories	(Rezaei, 2020)	Library studies and content analysis	In this book, by reviewing and extracting more than 140 different theories about the design process in various design disciplines, including architecture, the researcher identifies and introduces 8 common approaches in the design process: rational theories vs. empirical theories, procedural theories vs. content theories, normative theories vs. positive theories, design domains, designers vs. individuals, form and space creation paradigms, efficient instruments and resources in the design process, and place vs. non-place theories.
Proposing a Holistic Definition of the Architecture Design Process	(Goudini, 2020)	Open -structured interview	The author believes that the overall design process has a systemic nature and that there is a bilateral relationship between the whole and the part of the process. However, the totality of the design process has a flexible structure and is more in nature than the parts.
The relationship between research and design	(LenzholzerI et al., 1992)	Library studies and content analysis	Researchers believe in identifying the relationship between the architectural design process and research in different stages. This relationship is classified in three different ways, including research about design, research for design, and research through design. This study emphasizes that research is an integral part of the design process and the last type of research through design has a place to evaluate and influence contemporary architecture more than the other two types.
Judgement by design: Towards a model for studying and improving the competition process in architecture and urban design	(Chupin, 2011)	Literature review and case study	This research deals with the influential role of judgment in the architectural design process. Judgment and criticizing architecture based on theoretical frameworks provide an opportunity to identify and separate valuable ideas in architectural offices and competitions. For this purpose, in this study, a model for judging called "Judgement by design" has been introduced in four different stages common in architecture competitions. This model focuses on design methodology and seeks to judge design by identifying the design thinking underlying it.
Assessing the Use of Metaphors in the Design Process	(Casakin, 2006)	Questionnaire and design	The results of this research show that the role of metaphor in the emergence of initial design ideas is more prominent than in other stages, while the design process, as it approaches its end, requires more complexity in reflecting the initial metaphors. Therefore, metaphor can be considered as an instrument for solving problems in the design process.
Architectural Thought: the design process and the expectant eye	(Brawne, 2003)	Library studies and descriptive analysis	In this book, the author is trying to show that there is a significant lack of studies on the design process with a focus on non-verbal thinking in the literature of this field. According to this, by revealing the role of visual and non-verbal thinking and its place in the design process, it seeks to recognize examples of architecture that manifest this type of thinking.

Rest of Table 3.

Title	Author & Date	Method	Conclusion
'Architecture, Metaphor and the Mind'	(Onians, 1992)	Descriptive-analytical	we use architectural metaphors in the form of language to express our thoughts, because the processes of design and construction and the experience of using the building are related to mental operations and the basic psychological needs of humans. According to this, paying attention to the linguistic features of the design process empowers architects to express ideas.
Modeling the Design Process in Engineering and Architecture	(Cross & Roozenburg, 1992)	Comparative analogy	In this research, the authors have compared different models of the design process in engineering and architecture and have shown that the one-sided emphasis of engineering models on rationality and hierarchical thinking can be completed and improved with the descriptive approaches of architectural models.
Explaining the place of metaphor and analogy techniques in the architectural design process: from understanding to problem-solving	(Nouri et al., 2021)	Library studies and logical reasoning	Metaphor is generally more effective in the stages of "understanding the design problem", and "concept design", and analogy is generally more effective in the stages of "solving and advancing the problem" and "concept development".
Learning styles and comparative thinking in the architectural design process	(Bastani and Mahmoudi, 2019)	Action Research and Correlation	By conducting this research, the author states that most architecture students use symbolic and direct analogy, and architecture students are more active, intuitive, visual, and sequential in their styles.
Architecture Design Utilizing Precedents the Study of How Iranian Professional Architects Use Design Precedents	(Mehr-doust et al., 2022)	Survey research method	The authors consider precedents selection criteria to include "features related to architecture", "features outside of architecture" and "general concepts" and do not consider a reference to precedents to be related to a specific stage of the process.
Assessment of the way of structuring design issues in the selected designs of Iranian architecture competitions	(Gudini and Fathi, 2019)	Content analysis method	The structure of the problem in the design process is generally defined from the perspective of the designer, and users play the least important role in defining the problem. In general, the structuring of selected design issues is considered to be more related to the individual aspects of design.
Problem Framing: The Designer's Way of Tackling Design Problems	(Shariatrad & Nadimi, 2016)	Descriptive-analytical	In this research, the authors discussed "problem framing" and believe that by using it, designers focus more on the most important issues of the problem and close their eyes to other issues, and for a more accurate understanding, this framing can be repeated many times.
Rethinking the concept of metaphor in the scope of creating the space of architecture and literature (case study: excellent public architectural works implemented in Tehran from 2003 to 2016)	(Batoei & Rezaei, 2016)	Library studies and interviews with designers	This research showed that mental metaphors have an important contribution in finding the importance of architects in Tehran, and symbolic and reproductive methods are less seen in the works of successful architects, and comparing metaphors in architecture and literature can help to better understand metaphors.
Design Process (Decoding "Analogy" as a Major Method of Form and Space Producing)	(Rezaei, 2014b)	Interpretive and inductive study	"Analogy" in the design process has "external" and "internal" degrees, and the components of "analysis" consist of both the internal degree (including the program and the site) and the external degree (including examples and phenomena).
Sources of Architectural Design Ideation in the ideation process of several architects from the country's professional community	(Nadimi & Shariatrad, 2012)	Field method with questionnaire	The sources of architectural ideation include "platform", "subject" and "designer-oriented factors", in the initial idea of architects, 60% of the ideas are oriented to the problem and 40% to the designer.
Generators and processors in the design process	(Ansari, 2009)	Descriptive-analytical	The author believes that the starting point of the creation of the design is the initial generators that designers use different generators at the beginning by processing these components, the main component of the design is extracted.
"Visual Analogy" and its Position in Creative Education of Architectural Design	(Khakzand et al., 2009)	Descriptive - analytical	The authors present a model for the creative design process in which visual analogy is used, the steps of which include "seeing and hearing", "experiment and perception", and "inspiration from creative designs and their combination" which leads to the body in the design process.
Understanding the design issue in architecture learning; Review the desired components in the sufficient understanding of the design as a starting point for novice designers.	(Daneshgar Moghadam, 2009)	Descriptive - analytical	The results of this research show that it provides effective strategies to identify and bias teachers in teaching design courses and facilitate the internalization of the design problem by the beginner designer.

Table 4. Definitions of the design process. Sabri, 2014.

Author	Year	Comment
Alexander	1965	Finding the appropriate physical components of a physical structure
Archer	1963	A purposeful activity to solve the problem
Asimov	1962	Decision-making, despite ambiguity, with heavy costs for error
Booker	1964	To simulate what we want to build (do it) before we build (do it), as many times as necessary to be sure of the final result.
Far	1966	Determining factors for parts of the product that come into contact with humans
Nilin	1993	Engineering design is the application of scientific principles, information, and technical vision in defining a mechanical structure, device, and system to perform predetermined tasks with the lowest cost and the highest efficiency.
Gregory	1966	Associating the product with the conditions to make satisfaction
Jones	1966	A very difficult commitment to make
Mochet	1968	The optimal solution for all the real needs of a special set of conditions
Paige	1966	A creative leap from existing realities to future possibilities
Rosvik	1965	A creative activity that involves creating something new and useful that did not exist before

different as the descriptions of the design process. The common denominator in the above descriptions is that; definitions do not refer to the design result but to its components (Sabri, 2014; Christopher, 2011).

Charles Eames says about what design is "Design is a plan for arranging elements in such a way as best to accomplish a particular purpose" (Brawne, 2017). The point of reliance of this definition is more on the result than on the process, in any case, the definition states that the plan always tries to create change in the future by citing and relying on the current situation. The instrument of this situation change can be diverse and use models, opinions, or simulation devices. Many of these activities apply a particular form of design in its broadest sense; therefore, what happens in architecture can be important in other activities that are not necessarily related to architecture. So the question is how to predict the future from past and present events. In addition to the fact that the result is dependent on time, one should ask whether the process, hierarchy, and sequence of the design also change over time (ibid., 2017).

• Design process

One of the most important comprehensive challenges regarding the knowledge and study of contemporary Iranian architecture is not paying attention to the fundamental issue that the study of a subject that is based on a process, regardless of the process of its creation, will lead to the loss of an important part of awareness. Although the design subject has many internal and external generators, the role of the architect as the one responsible for regulating relations and also the decision-maker cannot be neglected. Neglecting expert studies has reduced the processes to sequentially a series of events (Lawson, 2013).

Not much time has passed since the first attempts made for process research, but the concept of process research has been increasingly expanded and developed. These attempts have always provided a platform for a critical look and created space for the presentation and development of definitions.

One of the most important features of process research in the past few decades is the existence of a pluralistic understanding of it. Such a situation

can potentially be considered a capacity in the development of the discipline. But we should not forget that on the other hand, it will complicate the research process. The result of such an action in the past few decades has caused the knowledge of the design process to be included in the process itself. From the point of view of the majority of experts, it is not possible to mention a specific method or process in design. What is stated as problem-solving techniques in the research is only to restrain the thought in certain stages of the path and no guarantee following it will lead to results. However, there has always been an effort to define the empirical-intuitive aspects of design in the majority of the process. The product of architectural design as a space is proof of the existence of a method and process in its creation. A process that has been successful in finding a solution to a design problem (Chakrabarti & Blessing, 2015).

Until the Age of Enlightenment or the formation of the roots of modernity during the Renaissance, most of the processes used were intuitive. In these methods, the designer is the center of all decision-making. The circle of knowledge and problem-solving methods only rely on the designer's mental abilities. The architect should be considered the center of analysis, and creativity, and the undisputed decision-maker of the design process. This method has continued until now, and one of its most important features is the designer's mastery over the process and following the path by trial and error (Rezvani, 2014). Attempts have been made to define the problem-solving process as a set of successive steps. By comparing the proposed definitions, there are differences in terms of the number of steps and the focus in each of these definitions is on a fundamental aspect. But almost all of them have a common structure. Regardless of the details, the common feature of all the models obtained in the study of processes is that they start with the problem and continue with different alternatives as a solution, evaluating, and choice of one of these alternatives as the optimal and final option. Ultimately, efforts will be made to develop the final choice. The next step is the detailed description and then the refinement of the option that has been chosen, and finally, will be the implementation of the plan (Rezaei, 2014a). Specific frameworks have been presented about the structure of the design process, the steps and how they are related, and the patterns of movement between them (linear, parallel, partial, cyclic, circular, or spiral). Based on the research by Goudini et al., (2024), What is common among all these processes is the "analysis" and "Synthesis" steps. John Chris Jones considers the three stages namely "Analysis", "Synthesis", and "Evaluation" as the basic framework in any design process (Kumar, 2004). Koberg and Bagnall consider the first step of the design process to divide the problem into smaller parts and call it "analysis". Then they combine these components. But the key point in "Synthesis", is that the result of the work depends on the designer's understanding of the analysis. They believe that the analysis will be the cornerstone for the main idea and outline of the plan. In their studies, Koberg and Bagnal changed the design process from two stages to three stages: analysis-definition- Synthesis, then five stages: analysis-definition-imagination-choice-implementation, and finally seven stages: acceptance-analysis-definition-imagination-choice-implementation-evaluation. have expanded and developed (Koberg & Bagnall, 1974). However, by reviewing the processes that have been identified and recorded up to now, two macro-patterns can be identified in the design processes: First, a type that has a linear and seven-stage perception process and in which the identity of each stage is recognizable and independent. Rittel makes design the subject of discussion, which includes; Identifying the problem, data gathering and analyzing it, creative leap, and finding it in six stages idea, information, analysis, synthesis, evaluation, and optimization (Catanese, 1979).

In fact, in these models, in the decision-making process, a series of abstract acts are considered, which take place in a sequential linear order. These

patterns owe a lot to the "rational" patterns of decision-making in other fields (Leng, 2015). The inadequacy of this model is that, for the design, a kind of inevitable linear course of brevity in details is given, which is contrary to the program of some well-known designers who sometimes start from the design of details and even the selection of materials (Lawson, 2013). The second macro-pattern, believing that there is no starting point and no ending point for a process, presents a cyclical idea of the design process.

Lawson introduces the design process in the interaction and action between the design problem and solution, the triple actions of analysis, synthesis, and evaluation are present in this interaction. He does not make an effort to provide a path for the method and introduces the architect as responsible for authoring the path for the design process (Nadimi, 1999).

In most of the interpretations presented in this macro-pattern, the design process is referred to as a mental process, including a sequence of activities with the aim of changing the situation in order to achieve the design goal. In the design process, the weight of each step may be different from the designer's opinion, and if necessary, the designer has the authority to go back to the previous step and experience the return loops in the process (Lawson, 2013). The designer can move several times in the design cycle and in each cycle, a large number of new topics and analyses are taken into account (Naser Khaki, 2009).

It seems that the providers of both types of design process models, being aware of their shortcomings, especially in the design process, have always sought an optimal model and expected more satisfactory models in future research (Snyder et al., 1979).

A summary of the multiple stages of the design process, from the intellectual perspective of expert thinkers in this field, is presented in Fig. 1.

- **Profession**

The foundation of Iranian architecture, as a developing country, has encountered challenges caused by globalization during the past decades. Maintaining local procedures and trying to protect them from some groups that currently have the desire to participate in progressive discourses will have an effect on the current professional architecture. This will put the design, which is a political matter (politics not by its definition and necessarily a sovereign thing, but meaning the place of representation of power and the factors involved in it), in a challenging situation, and the responsibility of passing on such a challenge rests with the designer. Such changes may be the result of contact with more advanced societies, either in the form of invasion and colonization, or in the sudden intrusion of foreign aid to underdeveloped countries, or it may even be the reverse of what Alexander describes (Lawson, 2013). Therefore, it seems that the designer, as an actor in this field, plays a fundamental role in the development of design processes and the improvement of these processes for the architectural platform to which he belongs. Activism in the sense that the architect, in the field of his pleasant discipline, leaves the position of passivity and starts designing a work based on theoretical values that can be analyzed and criticized, will have value. For this reason, the activism of Iranian architecture for the development of the discourse governing the flow of the profession and the architect's relationship with it can be considered an important issue in these relations. For this reason, the activism of Iranian architecture for the development of the discourse governing the flow of the profession and the architect's relationship with it can be considered an important issue in these relations. Process research can depict a more accurate image of the relationship between the architect and the professional community and document and analyze the changes that are made to make the methods and processes more efficient in the context of the profession so that the evolution of the methods and processes is beneficial or detrimental to the context of Iranian architecture will be questioned.

Table 5. The steps of the design process from the point of view of the most important experts in the field of research process. Source: Authors.

	Process steps							
Expert	**Coberg & Bagnall**	Acceptance	Analysis	Definition	Imagination	choice	Implementation	Evaluation
	Lawson	Problem determine	Conscious effort to solve the problem	Unconscious effort	The sudden appearance of an idea	Conscious development	-	-
	Jones	Idea	Information	analysis	synthesis	evaluation	Optimization	-
	Rittel	Problem recognition	Data gathering and analyzing them	Creative leap	Find a solution	Test the solution	Connection and do it	-
	Dorset & Lawson	Amendments	Representation	move	evaluation	Managing comparative challenges	-	-

Table Guide Description: Color refers to the statement of the problem stage; pink color, refers to the analysis stage; gray color refers to the stage of unconscious effort; green color, refers to the stage of sudden combination; pink color, referring to the evaluation stage; dark blue color, referring to the stage of conscious composition; brown color, referring to the implementation phase; yellow color and refers to the option comparison stage, which is placed in different places in different methods of the design process.

- **Grounded theory**

The intellectual framework of this research is based on the grounded theory that is obtained from unstructured interviews and feedback. After conducting the first interviews and entering the data analysis, the grounded theory was chosen for data analysis, so that during the coding process, the vocabulary whose semantic relationship was systematically found was used.

Relying on such a structure adds to the validity of the research. On the other hand, while formulating the analyses and configuring the final theory, its changes can be compared with the grounded theory. The process proposed by Koberg and Bagnall has features that make it an advantage to be used as an instrument in text analysis (Fig. 2). The logic behind Koberg and Bagnall's theory is described in Table 5.

Analysis

- **First-level coding (open coding mode)**

In the interviews, there were different sentences with the same meaning. These same concepts are discovered and coded under one title. During coding, more than 169 codes were extracted in the field of questions related to the design process and its

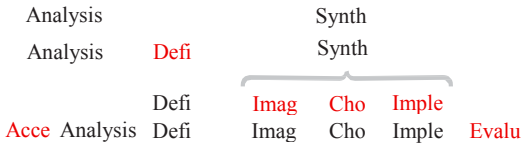


Fig. 1. The evolution of the process from two stages to seven stages presented by Koberg and Bagnall. Bergman et al., 2004.

related steps. In order to make it possible to manage these concepts, the content was categorized and each category was placed under more abstract terms (major concepts). The basis of the classification was considered the Grounded theory of Coberg and Bagnall. This work provided an opportunity to determine the weight and order of each of the steps that the architect takes during the design to solve the problem.

- **Second-level coding (axial coding mode)**

Axial coding is a process for reorganizing data that has been fragmented into smaller components during open coding. In this research, data analysis was conducted based on a framework developed by Koberg and Bagnall. Throughout the coding process of this seven-part theory, the vocabulary associated with each stage was identified and coded, both explicitly and implicitly (see Fig. 3). In this process,

some phrases had multiple readings or indicated more than one stage of design; thus, they were considered across all stages of coding. Accordingly, efforts were made to examine the process layers separately for each participating office, as illustrated in Fig. 4. As a result, in the qualitative analysis, some codes were repeated in different sections. In the current study, which examines strategies for the development and enhancement of design processes in Iranian architecture firms based on the experiences of leading firms, the results of coding indicate that the evaluation stage holds the highest weight among the seven stages of the design process. This stage comprises approximately %41of the coded concepts. Following that, the definition with % 20 and analysis with % 17 received the most emphasis among the interviewees. The acceptance stage, with %10, ranks fourth, while imagination, with %6, is positioned fifth. Finally, the choice and implementation stages have the least contribution to the design process, with % 4 and % 2 respectively.

The results of the research indicate that the level of activity among architects significantly increases during the initial and ultimate stages of the design process. The interviewees placed the greatest emphasis on the acceptance, analysis, and definition stages, which are associated with understanding and redefining the problem. Additionally, the evaluation stage, which measures the achievement of design objectives, holds particular significance. In contrast, the implementation of the design accounts for the least weight among the stages. This phenomenon can be interpreted in two ways: either the participants possess a level of self-awareness concerning this matter that is not represented in their discussions, or the interviewees are somewhat oblivious to the impact of the existing potential capacities in this step of the design process. It is also noticeable that architects tend to engage less in discussions about topics that are less contentious for them.

According to the Koberg and Bagnall theory, the design process consists of two main components: analysis and synthesis. Within this framework, the stages of acceptance, analysis, and definition represent the analytical part, while the stages of imagination, choice, and implementation represent the synthesis part of the process. The findings of the research indicate that 47% of the concepts discussed in the interviews pertain to the analytical section, whereas only 12% relate to the synthesis section. Additionally, evaluation holds a significant position among the interviewees' responses, accounting for 48%.

This finding aligns with the development of Koberg and Bagnall's theory, as evaluation has been added as an independent stage in the evolution of their model.

From these data, two interpretations can be made: First, the minds of the architects participating in this research follow specific cognitive patterns as a part of the design process, which leads to an emphasis on analysis and evaluation. Second, the results of this study indirectly affirm the validity of the Koberg and Bagnall model, as they indicate that their proposed process remains adaptable and relevant even in different research contexts and at other times and places.

Another issue is the importance and weight of the evaluation step in the minds of architects participating in this research. There is a continuous evaluation trend in the design process of these architects, which accounts for nearly half of the weight of the concepts. This self-evaluation trend shows the existence of critical thinking in the design process of architects participating in the research. Nearly % 88 of the total weight of the concepts (evaluation and analysis) refers to an analytical approach in the process, which is important in representing rational thinking in the design process of participating architects. This topic provides a picture of the perspective of the design process among architects and provides an opportunity to understand the state of the architectural context and compare it with similar situations.

- **Third-level coding (selective coding mode)**

- First narration (Acceptance)

According to the Bagnall and Koberg theory,

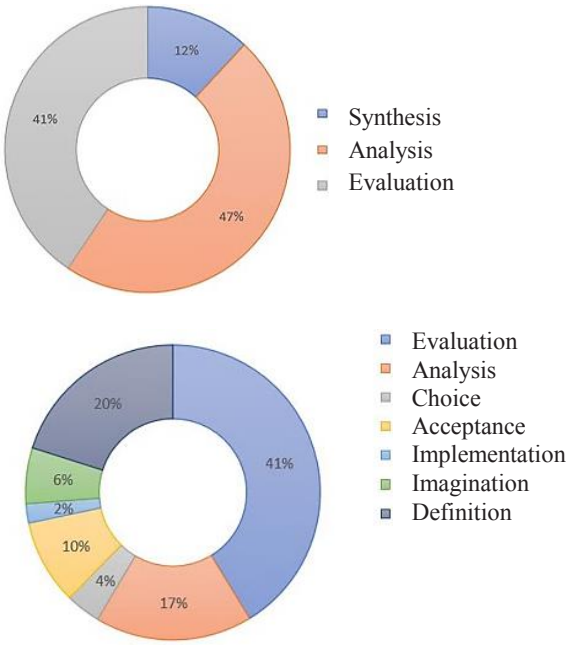


Fig. 3. The percentage of coverage of concepts related to the design process based - Koberg and Bagnall's opinions (top), the weight chart of the three main steps of analysis, synthesis, and evaluation in conversations with architects participating in the research (bottom). Source: Authors

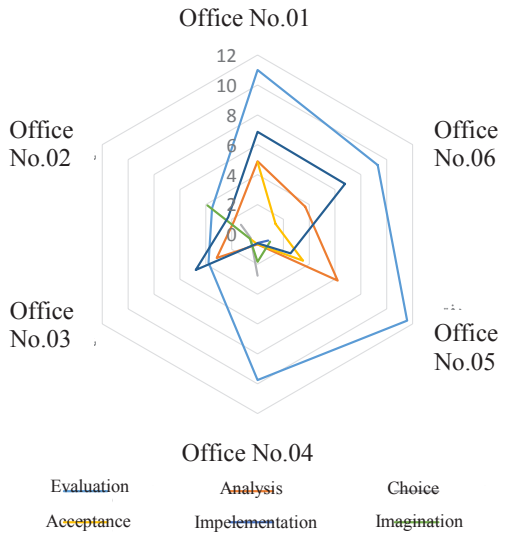


Fig. 4. The weight of the steps of the design process in each of the participating offices in the research-based - Koberg and Bagnall's opinions. Source: Authors.

acceptance is considered the initial step in the design process and represents the first phase of a triad task to problem analysis. In this research, an examination of the interviews reveals that the attention paid by architecture firms to this stage varies. The greatest emphasis on acceptance was observed among architects from Offices (firms) 1 and 5, while architects from Offices 6, 4, and 3 gave less attention to this concept. Office No. 2 did not directly discuss acceptance but focused on the broader concept of "cognition".

Importantly, all architects emphasized the significance of cognition, even if they did not explicitly refer to acceptance as a standalone stage. In the next step, architects utilize analytical tools to begin the process of breaking down and simplifying the problem.

For example, Architect No. 6 suggested using diagrams as a tool for initial cognition.

Overall, the first reaction of architects in their path to cognition involves examining the context and project site. This issue is interpreted differently among the participating architects but generally indicates that the design process begins with an environmental cognition and subsequently leads to a deeper problem analysis.

The first interpretation: This may be due to the existence of a dominant discourse among architects participating in the research. If such an interpretation is correct, it should appear in other parts of the architecture of this part of the professional community, in addition to the ability to search for it in other layers.

The second interpretation: It is the architects' desire for a kind of representation and their effort to express a kind of belonging to the well-known currents of professional literature. In such a reading, it is possible that the architect, whether in terms of his field of thought or his works, does not even have a relationship with contextualism, but somehow benefits from its validity.

- The second narrative (analysis)

After the acceptance stage, designers enter the analysis phase, where they effort to understand the nature of the problem and the current conditions. This stage can be regarded as the beginning of the designer's active engagement in the design process, as it adopts a divergent approach to examine the complex factors influencing the project. Analysis plays an important role in biasing the design process and prioritizing the influential components. During

the interviews, any phrases referring to the breakdown and problem cognition were coded under the analysis category.

For instance, Architect No. 1 emphasizes the importance of analysis when mentioning the various layers of a problem. One of the key tools in this stage is diagrams. Three architectural offices have seriously employed diagrams for analyzing the project's context, viewing them as cognitive tools for configuring and breaking down the problem. Diagrams assist architects in organizing the various components of a project and clarifying the path toward a solution. In addition to diagrams, models are also used as tools to investigate the relationship between the design and the context. For example, Office No. 2, while analyzing the context, reconstructed a part of the city with a model, thereby studying the interaction between the design and the environment.

This approach can be seen as an objective confrontation with the problem, contributing to a more tangible understanding of the design conditions. A notable aspect of this stage is the variation in analytical approaches among the architects. Architect No. 3, instead of employing the causal analysis commonly used in architecture, adopts a linguistic approach. He/she seeks to uncover the grammatical structure of the historical context of the project to advance his design accordingly. In contrast, Architect No. 6 also considers historical analysis and the discovery of architectural patterns to be important but differs in execution methods from Architect No. 3.

This divergence indicates that even when two architects share similar values, their design paths and outcomes can be fundamentally different.

- The third narrative (Definition)

After analyzing the various layers of the problem, the architect reaches the definition stage, where the extracted components are represented and their interrelationships are specified. In this phase, the design transcends a merely analytical process, as the architect provides a new geometry of the problem based on their knowledge, experience, and insight. This step retains a divergent nature and marks the first manifestation of the architect's influence in the design process. The discussions conducted during the research indicate that all architects emphasized the importance of this stage, reflecting a certain self-awareness regarding the role of definition in the design process. An analysis of the interviews indicates that architects adopt different approaches during the definition stage. Architects No. 1 and No. 6 place the greatest emphasis on this stage, discussing the weighting of various factors post-analysis—factors that directly influence the fate of the design process. In contrast, Architect No. 3 views the definition through a linguistic lens, following his analytical method. He studies architecture as a language and endeavors to utilize the rules of historical architecture in redefining design issues. This perspective leads him to consider the definition process as based on a retrospective model inspired by the understanding of past architecture. On the other hand, Architect No. 5 employs a critical approach to the problem statement. He considers analysis as a means to uncover the hidden layers of the problem and regards redefinition as a way to enhance the project's context.

This viewpoint implies that redefining the problem not only problem-solving but also contributes to an overall improvement in architectural conditions.

In office No.2, the definition of the problem is accompanied by a type of intuitionistic. The architect in this office begins the design process intuitively post-analysis and then seeks to identify a sort of "DNA" of the project to expand upon it. This method, while emphasizing continuous effort in problem-solving, underscores the importance of intuitive insight in the initial cognition of design. Moreover, Offices 2 and 4 are the only firms that have directly referenced the role of intuitionistic thinking in design. A key point in this stage is the intertwining of intuitionistic and analytical thinking among architects. Many architects have indicated the difficulty in distinguishing between these two modes of thought. Architect No. 6 explicitly emphasizes the simultaneity of these two approaches, discussing the creation of an organic structure based on a sensory concept that

simultaneously aligns with quantitative criteria, such as structure and program. This approach illustrates a form of deductive reasoning in the design process, where intuitionistic ideas and logical analysis coexist to foster the development of the project.

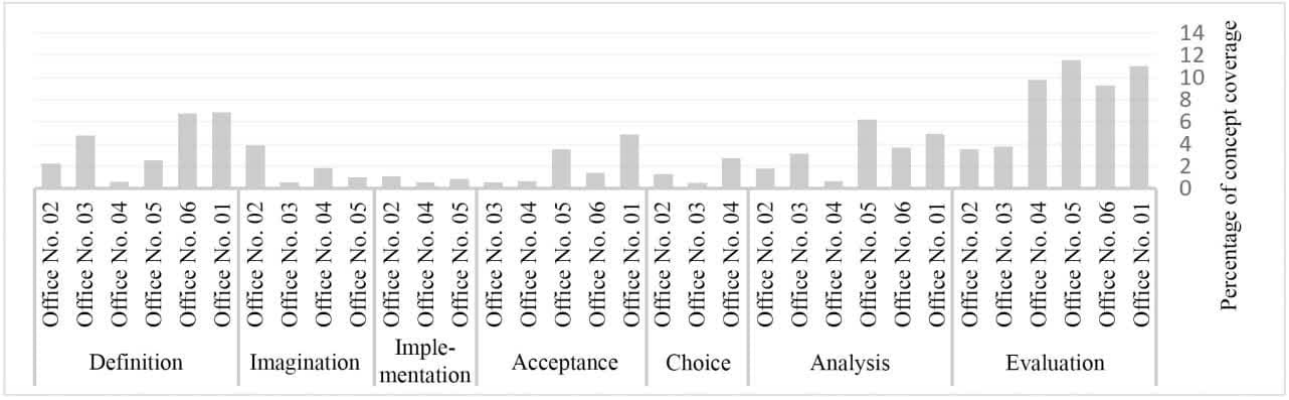
- The fourth narrative (Imagination)

This stage can be perceived as the ultimate divergence. The predominant approach at this stage should be regarded as creative thinking. In such a state, the mind begins to explore the possibilities of the design and may even exceed the inherent capacities of the context. Only 6% of the concepts from the interviews reflected a form of imagination or divergent movement in the development of the design. Two interpretations can be drawn from such data:

First interpretation: Given the professional status of the interviewed architects and their level of skill in solving problems, they may encounter issues that do not provide opportunities for creative structural, legal, and other challenges, which are often, considered limiting factors in design, takes precedence for the architect. However, this interpretation does not align with the significant role architects play in the Iranian architectural community through their creative processes, although the impact of such limitations cannot be overlooked.

Second interpretation: Creativity is inherently accepted as an architectural design prioritization; therefore, architects at this level are less likely to consciously discuss it, and tracing its presence in their discourse becomes challenging. Furthermore, the individual and introspective nature of the imagination stage, along with architects' linguistic limitations in describing this process, reduces the discourse surrounding it. This may stem from lexical poverty or the conceptual nature of imagination as articulated by architects.

As shown in Fig. 5, architectural Offices 1 and 6 did not refer to imagination. Architects 2



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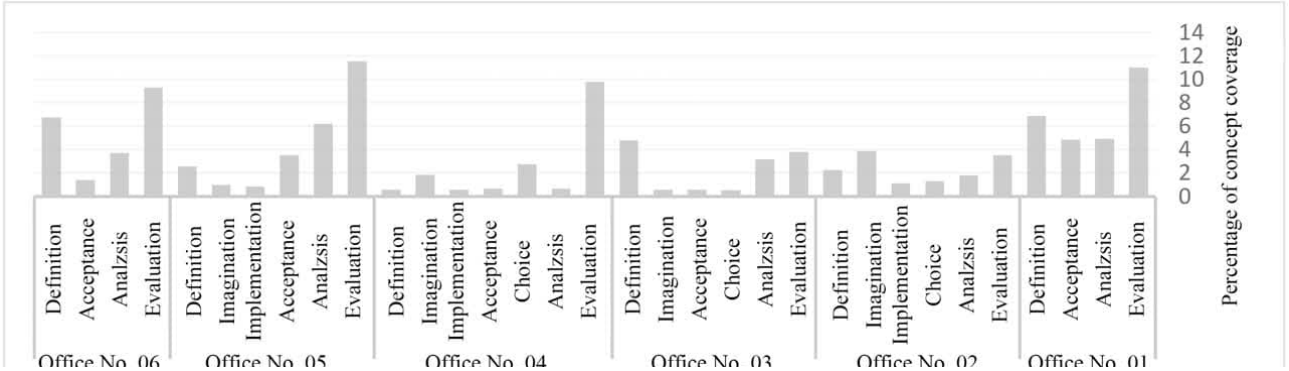

B

Fig. 5. a)The percentage of coverage of design process concepts by participating offices in the research. b) The stages of the design process according to the participating architects in the interview. Source: Authors.

and 4 emphasized the necessity of controlling imagination during the design process; for instance, Office 2 feels that after trial and error, its efforts may be ineffective and should be halted, while Office 4 refers to this control as "preventing indulgence", implying that the act of imagination has no ultimate boundary. Additionally, Office 3 bases its imagination on the actions of the user or operator.

- The fifth narrative (choice)

The "choice" step can be regarded as the starting point of convergence in the design process, whereas the previous stages, especially imagination, have a divergent nature. Choice is intrinsically linked to evaluation and is based on research background, personal experiences, or analyses that have emerged during the study of the issue, necessitating a rationalism and critical form of thinking. Architect No. 4 places the greatest emphasis on this concept and considers controlling imagination essential, viewing some outcomes of this stage as assets for solving other problems. Furthermore, He/she believes that after the choice step, the scale of changes becomes limited and smaller. The evaluation of choices begins from the very start of the process, specifically from the analysis stage, and continues through to the synthesis phase, highlighting its significance in the design workflow. Architect No. 2 emphasizes a form of control after the imagination step, believing that architects are compelled to restrict their imagination and choice, as excessive development of a design may produce counterproductive results. In contrast, Architect No.3, with a linguistic approach, considers choice a natural part of the design process, comparing it to Darwin's theory of natural selection. He/she believes that architecture, akin to a living language, eliminates heterogeneous elements and evolves towards a fluent and coherent language. This perspective views architecture as a living entity that ensures its self-improvement and continuity through a self-evaluative mechanism.

- The sixth narrative (implementation)

The next stage in the design process is implementation, which holds significance for several reasons. Firstly, it continues the convergent trajectory established in the preceding phases. Secondly, it involves the finalization of choices that were previously in formation during the selection step. Thirdly, and critically, it embodies a pragmatic dimension: whereas decisions may be formulated during earlier stages, it is only through implementation that they are fully actualized. Another crucial issue is the influence of implementation quality on the overall effectiveness of the decisions. While the designer may arrive at a resolution concerning how to confront a problem, the actual execution can significantly impact the final outcome. It is also important to highlight that, among the seven steps of the Koberg and Bagnall model, implementation received the least emphasis in architects' discourse. One reason for this may be the individualized nature of implementation, which varies based on the architect's involvement in the construction process.

Among the interviewed participants, Architect No. 02 addressed implementation more extensively than others, noting that during his professional career, he initially allocated more time and attention to the execution phase of the design. Office No. 04, however, conditions the implementation of certain design changes on a cost-benefit system—that is, if the cost of executing particular decisions during the design process exceeds a predefined threshold, those decisions may be discarded.

Another important point, previously mentioned, is the reuse of experiential and knowledge-based capital from one project in another. In other words, not all implemented solutions are necessarily the product of the current problem-solving process; they may instead derive from prior experiences. Office No. 05, while emphasizing the processual value of architectural work, does not regard the value of a design solely as dependent on its execution. However, it should be noted that Architect No. 05 interprets implementation strictly as construction, which frames their perspective.

Meanwhile, Offices No. 01, 03, and 06 offered

no substantial commentary regarding the implementation phase within the design process.

- The seventh narrative (evaluation)

The "evaluation" step represents a return to critical thinking grounded in analysis. Following implementation, the architect critically and analytically assesses the validity of their response to the issue. Due to the self-evaluative nature of the process and the unity of critical and pragmatic reasoning, architects face challenging situations. Some architects resort to external mechanisms for verification of their decisions.

In the discussions among architects, 3 key concepts of evaluation have emerged:

1. Measuring Success: An investigation of the architect's responsiveness to the problem, which can be either internal or external;
2. Scenario: A revision of the initial design scenario and an assessment of the extent to which objectives have been realized;
3. Qualitative Evaluation: Assessments conducted by external entities based on external criteria, evaluating managerial performance

Among the interviewed architects, various approaches to design evaluation are observed:

Offices 1 and 2 utilize external metrics for a more precise assessment of their designs. Office 1, in addition to individual analysis, consults experienced architects, experts in related fields, and colleagues for feedback.

Office 2 also leverages social networks and expert opinions to evaluate design alternatives. Office 4 refers to ongoing critique and assessment within the design process, which, despite the absence of a clear output, reflects a cohesive approach to their professional practice. Furthermore, it considers some evaluation criteria independent of the architect's role.

Office 6, employing a deductive reasoning approach, compares the design outcomes with the physical program, structure, and other technical issues, assessing them against the initial design scenario. Ultimately, it also acknowledges personal and collective taste in some contexts, while emphasizing that the process should be directed towards rationality. Office 3 focuses on managerial evaluations and external criteria, proposing metrics such as project re-referral by clients. It also emphasizes "linguistic memory" as an internal metric, connecting the measurement process to the architect's intuitive understanding, even though the exact mechanism of this discovery remains obscure to them.

The research findings were formulated across five methodological levels (outcome, strategy, phenomenon, context, causal conditions) and four layers of awareness, process, history, and profession. In the initial stage, phenomena related to the research question were extracted as the intermediate layer. Subsequently, by analyzing the downstream layers of the discussions, the causal logic governing these phenomena was examined. Finally, the consequences of these phenomena were analyzed as the upstream causes through logical reasoning.

In the analytical layers, efforts were made to investigate the context of the discussions and the mediating factors within the design processes of leading architects. Due to the dynamic nature of the phenomenon being studied, providing an accurate representation of some mediating factors was challenging. The aim of the study was to understand the actions of architectural firms in developing the design process and adapting it to the Iranian context. After structuring the data (as per Table 6), the final interpretation was presented as a summary of the research.

Conclusion

After formulating the categories for the first question, it seems that the core category of this question is "the movement of the progressive movement towards analytical thinking and the importance of analytical steps" as well as a critical look at the phenomena among the leading architects of the second-generation

Table 6. Categories obtained from interviews and description of each of these categories. Source: Authors.

Categories	Description
Knowledge of literature	Most participating architects in the research employ the literature of the design process in their discussions. Traces of the keywords from Koberg & Bagnall's theory can be found in the literature of the participating architects. The significance of this matter is twofold: first, to elucidate the relationship between theoretical space and the profession, and 2nd, to provide an opportunity for the development of architectural literature through the bidirectional relationship between the profession and the academic space.
Contextual attention as value	They consider the relationship between context and artwork to be valuable. For this reason, they try to have an image of the relationship between context and artwork.
Providing an analytical image of the context	Architects focus on establishing the relationship between the work and its context by providing a representation of the context. In the initial steps of the process, architects utilize analytical thinking to represent the context in a way that effectively advances the design. The use of diagrams and efforts to employ analytical thinking serves as a practical strategy for architects in this regard.
Critical and Analytical Thinking	Architects place particular importance on the steps of evaluation and analysis. The foundation of these steps is critical and analytical thinking.
The dominance of disaggregation	The least conversation among architects pertains to the observer steps of synthesis. It seems that considering the emphasis of the participants on analytical and critical thinking, architects tend to analyze most subjects with a fragmented perspective. For this reason, there has been less discussion regarding the observer steps of synthesis.
The role of the disaggregated view of concrete knowledge	Given that the steps of analysis are disaggregated in nature, they are less difficult to discuss. Also, for this reason, architects readily share concrete knowledge about the steps of analysis with others.
Less discussion about concrete knowledge of the observer steps of synthesis	They have an inner core. Sometimes it is difficult to know their inner workings and share them.
The challenges of proving concrete knowledge of the observer steps of synthesis	The intrinsic and individual nature of the observer steps of synthesis may reduce architects' inclination toward discussing them. Since the interpretations formed are individual, unprovable, and unmeasurable, architects proposing individual methods may encounter challenges and questions.
Attempting to represent an analytical flow in the process	Given the problem-solving nature of architecture and the importance of synthesis, architects may be less inclined to reveal their individual methods. For this reason, they tend to avoid discussing certain areas of knowledge that are scientifically unproven (confidentiality and avoidance of dialogue). During discussions, architects strive to present an image of their process that reflects an analytical and reciprocal relationship between the process and the design context.
Correspondence of process steps to people participating in the design	Regarding collaborative design and the governing systems within design offices, we find the independent identity of the procedural stages in the context of teamwork among architects participating in the research. This means that individuals are engaged in the process based on the necessity of their roles and the stages of the design process.
Intuitive Thinking as a Type of Value	Among architects, it appears that although they strive to present an image of critical and analytical thinking during the design process, due to the background and foundational nature of architectural education in Iran, intuitive thinking and citation on a form of intuition during design are still regarded as valuable.
Correspondence between the initial stages and intuitive thinking	At some stages, architects speak of a kind of intuition that they are not necessarily aware of its internal mechanism, and it often takes shape in the early stages of design to create initial ideas.
Internal and external mechanisms for evaluation	For the evaluation stage, which was the subject of the most discussion, architects recognize two general mechanisms: first, solution-assessing based on individual experiences, and 2nd, considering the opinions of expert architects who are professionally regarded as reliable by other architects.
Mediated Situational Experience	The representation of the concept of the process among the participating firms in the research serves as a historical reflection for a segment of the Iranian leading architectural community. It appears that the post-revolution of the 2nd generation is transitioning from intuitive thinking towards a more critical perspective.
The Originality of Analysis Through Evaluation by Collective Wisdom and the Media	The shift towards a media-oriented environment within this segment of the professional community, along with the necessity of elucidating processes and evaluations through collective wisdom, may serve as significant factors driving the movement towards an analytical space.

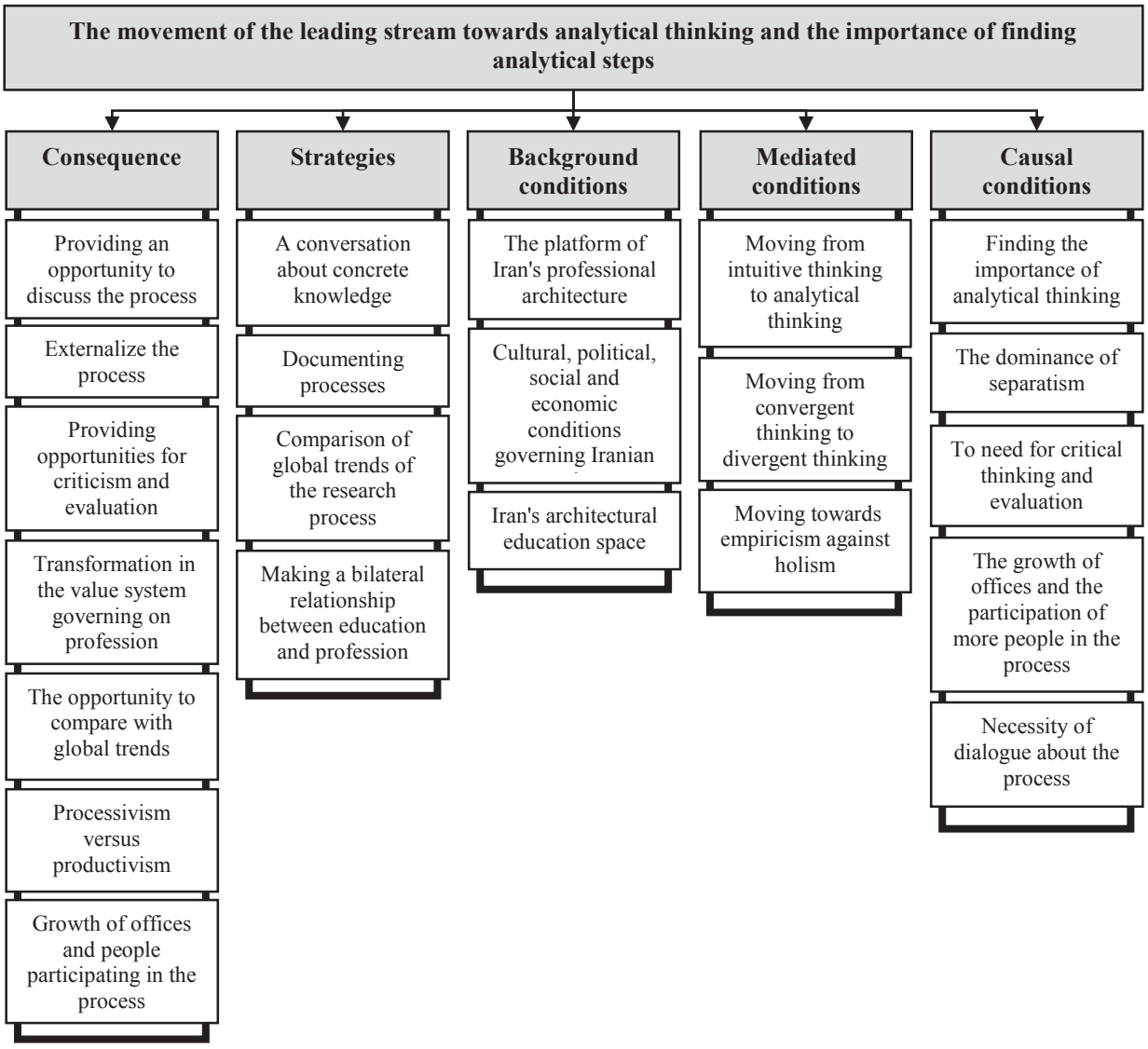

Fig. 6. The core category and classified categories of the first question. Source: Authors.

post-revolution. The rest of the categories can be considered categories classified in the layers of the causal situation, phenomenon, context, mediated condition, and consequence (Fig. 6). In response to the 2nd question, it should be stated that the majority of architects participating in this research emphasized the role of context in design; however, ultimately, even this relationship is framed under the dominance of a certain type of analytical thinking and the preference for analytical steps in the process. The significant issue is the transition from intuitive thinking toward analytical thinking. The need and necessity of such a phenomenon should be considered as a dissociative, divergent, and detail-oriented process. Among architects, we find a mediated situation, which means that the value system derived from intuitive thinking is still somewhat valid or has not been completely abandoned, but the departure
from it towards a kind of analytical and critical view should be considered valid. In terms of the causal logic governing such a situation, several interpretations can be presented, the most important of which should be considered to be the complexity of the problems faced by architects,

Table 7. Categorization of selection code concepts. Source: Authors.

		Research components			
		Awareness	**Process**	**Profession**	**History**
Methodological components	Context	1. Despite a kind of paradigm shift in design thinking from intuitive to analytical and critical methods, the roots of intuitive thinking are still seen as valuable among architects. 2. The cornerstone of École des Beaux-Arts of architectural education in Iran, has led to the formation of presuppositions about the design process.	1. The resulting processes of the academic space should be considered as standard literature and a discussion ground for process research.	1. Iran's architectural offices will be the subject of studies of the research process.	1. To record the contemporary situation should be called the historical dimension of contemporary research. 2. The history of intuitive thinking in art as well as the artist's individuality leads to the formation of a kind of conflict in the architect.
	Causal conditions	1. Due to the knowledge gap in the field of the process and the fluid nature of the subject, the participants are continuously learning the mechanisms governing their work. 2. Analytical thinking of architects is of special importance to understanding the phenomena. 3. Less talk about the synthesis: It confirms the lack of self-awareness in the synthesis part. 4. Some kind of inflammation of the subject of analysis is considered against relative synthesis. 5.It is possible that this situation comes back to the weakness of the expressive tools of architects in this field, which means that there is awareness, but not enough skills have been acquired to express it.	1. The reason for less discussion about the stage of imagination is its nature. 2. The reason for the less discussion about the concept of choice is to express its criteria in the stages of analysis. 3. The reason for less discussion about the implementation phase is the individual expression of each architect in the process implementation. 4. The greater weight of the evaluation step in the dialogue of architects is based - on critical thinking. 5. The greater weight of the analytical and evaluation steps is essential for architects' teamwork. 6. The amount of dialogue and the lack of dialogue about each of the steps is related to the level of self-awareness of the subject or the mental challenges of the architect. 7. Architects' greater attention to analytical and evaluation steps can be the result of their exposure to the media environment. This means that the need to explain or describe the project originates from this space.8. Most of the weight of the steps regarding evaluation and analysis comes from the conversations of professional spaces, which means that the necessity of answering some questions in the field of one's profession will be forced to analyze.	1. Due to time constraints, architects seem to emphasize analysis and evaluation in a professional environment. In the professional environment, stages such as imagination, choice, and implementation are less discussed due to the nature of the individual that they often have. 2. The professional status of offices requires architects to emphasize analytical steps so that the process is clear to all participants. 3. The high number of components involved in the problem leads to the necessity of continuous evaluation procedures. 4. The enlargement of architectural offices leads to the need to take an analytical approach. 5. The enlargement of the projects in hand necessitates analytical exposure. 6. The wide scope of the architectural issue in the professional space and the high number of participants in it require the necessity of evaluation. The high number of procedures in the offices and the number of people involved in the project have increased the necessity of forming an analytical-critical procedure.	1. Historically, it seems that participating architects still have tendencies to represent the image based on the Age of pre-Enlightenment of the artist. 2. Architects seem to be trying to shift their focus from intuitive thinking to critical thinking. 3. Weighing the analytical stages of the process is a kind of historical necessity. 4. The topic of evaluation and discussion about it is of special importance due to the historical necessity for architects. With the change in the discourse governing the design space and moving towards analytical thinking, we can witness the change in the position of the architect.

Rest of Table 7.

	Research components			
	Awareness	**Process**	**Profession**	**History**
Phenomenon	1. Most of the offices participating in the interview are more self-aware of the evaluation step. 2. Architects pay less attention to the step of imagination in the design process. 3. Participating architects talk less about the steps involved in synthesis. 4. Most of the participating architects in the research talked about cognition.	1. There is more attention to the evaluation step among research participants. 2. There is attention to the steps aimed at analysis among the interviewees is worthy of consideration. 3. The implementation step has received the least attention from architects. 4. The choice step is the penultimate step in terms of the weight of the discussions among the architects. 5. The implementation step is the last step due to the weight of the discussions among the architects. 6.It seems that for the architects participating in the research, both the initial and final stages of the process are of special importance. 7. Imagination step has allocated only 6% of the codes.	1. The possibility of group design with intuitive thinking in offices can be challenging. 2. Many offices consider the process as a personal and internal matter. 3. In some offices, the initial idea is solely in the hands of the attendant architect. 4. There are offices among the participants that use the people present in the offices only during the project development steps. 5. The position of the architect is changing due to the change of discourse prevailing in the profession.	1.It seems that the dominant trend among the interviewees is the movement from intuitive processes to analytical and logical processes. 2.It seems that participating architects, despite the desire to analyze and evaluate the problem, still have a special desire to present an intuitive image of the process.
Mediated conditions	1.It seems that the architects participating in this research still cannot talk clearly and with certainty about everything they do during design. Architects are moving towards a kind of self-awareness. 2. Such a situation may be the result of some kind of conservatism against sharing their data.		1. Professional experiences in Iran are significantly different from global experiences. Research and development (R&D) units in Iranian architecture offices should be considered as new units. 2.It seems that the position of architects in the profession is changing. The situation is changing from a completely vertical system to a horizontal system.	1.It seems that the architects present in the research are moving from a kind of intuitive thinking to a kind of logical thinking. Although they still value intuition. This can be referred to as the coordinates of historical cuts throughout the history of architecture. We can witness a kind of transition that has been experienced before in the history of architecture.
Consequence	1. Participating architects seem to be self-aware of the independent identity of each stage of the design process to a considerable extent. 2. Participating architects are not aware of the weight of each of the steps they discuss. 3. Cognition should be considered the result of the architect's analytical thinking. 4.It seems that according to the master-apprentice system that governs Iranian architecture, post-modernity, the trend of critical thinking has changed the framework of Iranian architecture.	1. Architects pay more attention to the stages of criticism and evaluation. 2. Architects use analytical instruments for cognition. For this reason, analytical thinking has been assigned a weight worthy of attention in the discussions. 3. Architects participating in the research have spoken less about the stages of synthesis, which may be due to the unconsciousness of these stages. 4. All the architects participating in the research have seriously talked about the cognition and analysis of the platform. 5. The stages that somehow monitor the individual interactions of the process are less discussed. 6. Most of the architects have considered the design platform with an analysis perspective.	1. Participating architects' offices are trying to understand the processes that govern them. 2. Often, the central ideas of projects are formed by the responsible architect. 3. Some offices participating in the research are trying to develop a kind of empiricism in the design process. 4. The division of labor system in projects can be defined based on process steps.	1.It is difficult to register concrete knowledge in intuitive thinking. 2.It is not possible to evaluate the validity of the findings about the architect's design thinking except by trusting his statements. 3. In the case of going through intuitive thinking, there is a possibility of losing part of the awareness during the analysis of phenomena.

the development of offices, and the necessity of a layered view of issues. In terms of the background condition, it should be mentioned the situation of multi-discipline in the issues faced by the offices, requires the necessity of an analytical and analytical approach in the design. In terms of the mediated condition, as it was said, the point of departure is a kind of intuitive look toward analytical thinking. However, the consequence of such a situation should be considered as a kind of problem-oriented design based on analysis. Such a situation leads to a rationalist view of architectural design.

In Table 7 the categorization of choice coding concepts has been discussed.

References list

• Aeini, S., Afzalian, Kh., Etessam, I., & Shariatrad, F. (2023). Metaphorical Reasoning in Architectural Design and Construction. *Creative City Design, 1*(1), 32-45. Retrieved from sanad.iau.ir/en/Article/919430.

• Aeini, S., Afzalian, Kh., Etessam, I.,& Shariatrad, F. (2021). Problem Framing, Interdisciplinary Problem Solving Strategy. *Creative City Design, 5*(3), 16. Retrieved from ://sanad.iau.ir/en/Article/919485.

• Aeini, S., Afzalian, Kh., Etesam, I., & Shariatrad, F. (2022a). Metaphor as an Extension of Deduction and Method of Architectural Design Reasoning. *The Monthly Scientific Journal of Bagh-e Nazar, 19*(110), 49-66. https://doi.org/10.22034/bagh.2022.303427.4993

• Aeini, S., Afzalian, Kh., Etesam, I., & Shariatrad, F. (2022b). Narrative Design as a Historical Technique (Case Study: Grand Mosque of Fahraj). *The Monthly Scientific Journal of Bagh-e Nazar, 18*(104), 93-110. https://doi.org/10.22034/bagh.2021.274960.4816

• Alexander, Ch. (1964). *Notes on the Synthesis of Form.* Harvard University Press.

• Bastani, M., & Mahmoodi, A. S. M. (2019). Learning Styles and Analogical Thinking Method during the Design Process of Architecture. *Journal of Fine Arts: Architecture & Urban Planning, 24*(1), 71-84. https://doi.org/10.22059/jfaup.2019.261784.672064

• Bergman, E., Lund, A., Dubberly, H., Tognazzini, B., & Intille, S. (2004). Video visions of the future: a critical review (pp. 1584-1585). *Presented at the Conference on Human Factors in Computing Systems*, CHI, Vienna, Austria: ACM. https://doi.org/10.1145/985921.986156

• Brawne, M. (2003). *Architectural Thought: The Design Process and the Expectant Eye.* Architectural Press.

• Brawne, M. (2017). A*rchitectural thought : the design process and the expectant eye* (S. Haghir, Trans.). Ketab fekar no. (Original work published 2005)

• Casakin, H. P. (2006). Assessing the Use of Metaphors in the Design Process. *Environment and Planning B: Planning and Design, 33*(2), 253-268. https://doi.org/10.1068/b3196

• Catanese, A. J. (1979). *Introduction to architecture.* McGraw-Hill Publications.

• Chakrabarti, A; & Blessing, L. (2015). A review of theories and models of design. *Journal of the Indian Institute of Science, 95*(4), 325-340.

• Christopher, J. (2011). *Design methods : seeds of human futures* (F. Sarmast, Trans.). markz neshar daneshgangi. (Original work published 1927)

• Chupin, J. (2011). Judgement by design: Towards a model for studying and improving the competition process in architecture and urban design. *Scandinavian Journal of Management, 27*(1), 173-184. https://doi.org/10.1016/j.scaman.2010.12.004

• Corbin, J; & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory.* SAGE Publications.https://doi.org/10.4135/9781452230153

• Cross, N., & Roozenburg, N. (1992). Modelling the Design Process in Engineering and in Architecture. *Journal of Engineering Design, 3*(4), 325-337. https://doi.org/10.1080/09544829208914765

• Goudini, J. (2020). Proposing a Holistic Definition of the Architecture Design Process. *The Monthly Scientific Journal of Bagh-e Nazar, 17*(91), 29-40. https://doi.org/10.22034/bagh.2020.201047.4298

• Goudini, J., & Fathi, S. (2019). Assessment of the way of structuring design issues in the selected designs of Iranian architecture competitions (case example: the selected designs of the architect award of 2013). *Memarishenasi, 2*(13), 1-8.

• Goudini, J., Rezazadeh, E., & Koulivandi, S. (2024). Developing a Model for the Totality of Designers' Actions in the Architectural Design Process (Aiming for Consensus on Ex-Models). *The Monthly Scientific Journalof Bagh-e Nazar, 21*(135), 11-20. https://doi.org/10.22034/bagh.2024.404676.5409

• Koberg, D., & Bagnall, J. (1974). *The Universal Traveler: A Soft-Systems Guide to: Creativity, Problem-Solving, and the Process of Reaching Goals.* William Kaufman, Los Altos.

• Kumar, V. (2004). *Innovation Planning Toolkit. In DRS Biennial Conference Series.* Melbourne, Australia. Retrieved from https://dl.designresearchsociety.org/drs-conference-

papers/drs2004/researchpapers/201

• Lang, J. (2015). *Creating architectural theory: the role of behavioral...*(A. Ainifar, Trans.). University of Tehran, Publishing Institute. (Original work published 1938)

• Lawson, B. (2005). *How Designers Think The design process demystified* (Fourth edition). Architectural Press.

• Lawson, B. (2013). *How designers think : the design process demystified* (H. Nadimi, Trans.). Shahid Beheshti University Printing and Publishing Center. (Original work published 2005)

• Lawson, B. (2016). *What Designers Know* (H. Nadimi, Trans.). Shahid Beheshti University Printing and Publishing Center. (Original work published 2004)

• LenzholzerI, S., Duchhart, I., & Van den Brink, A. (1992). The relationship between research and design. *In Research in Landscape Architecture - Methods and Methodology.* Routledge.

• Mehr-doust, E., Amin-poor, A., & Nadimi, H. (2022). Architecture Design Utilizing Precedents The Study of How Iranian Professional Architects Use Design Precedents. *Journal of Iranian Architecture Studies, 8*(16), 61-80. https://doi.org/10.22052/1.16.61

• Mohammadpour, A. (2018). *Counter-Method* (2nd ed.). Logos.

• Nadimi, H., & Shariat Rad, F. (2012). Sources of Architectural Design Ideation A Reflection on the Ideation Process of Eight Iranian Professional Architects. *Journal of Fine Arts: Architecture & Urban Planning, 17*(2), 5-14. https://doi.org/10.22059/jfaup.2012.30155

• Naser Khaki, H. (2009). *Role of Computers in Architectural Design Process; A comparative comparison of two generations of contemporary Iranian architects* [Doctoral dissertation, University of Tehran]. https://noordoc.ir/thesis/14325

• Nouri, M., Azizi, Sh., & Mousapour, M. Y. (2021). Explaining the role of metaphor and analogy techniques in the architectural design process: Problem-understanding and Problem-solving. *Hoviatshahr, 15*(3), 103-118. https://doi.org/10.30495/hoviatshahr.2021.16034

• Olia, Sh., Habib, F., & Shahcheraghi, A. (2022). Exploring the Place of Nature Strategies in Architecture Design Process Towards Nature and Built Environment Symbiosis. *Creative City Design, 4*(5), 70-84. https://doi.org/https://doi.org/10.30495/ccd.2022.698494

• Onians, J. (1992). Architecture, Metaphor and the Mind. *Architectural History,* 35, 192-207. https://doi.org/10.2307/1568576

• Rezaei, M. (2014a). *Design Analytica: Reviewing Theories and Concepts in Contemporary Design Process of Form and Space.* Islamic Azad University Press.

• Rezaei, M. (2014b). Design Process (Decoding "Analogy" as a Major Method of Form and Space Producing). *Hoviatshahr, 8*(18), 71-80.

• Rezaei, M. (2020). *Reviewing Design Process Theories: Discourses in Architecture, Urban Design and Planning Theories.* Springer Nature. https://doi.org/10.1007/978-3-030-61916-9

• Rezvani, A. (2014). *Functional classification of methods and introduction of seven architectural design processes.* The article presented in the first national conference on research methods in urban planning and architecture. Yazd University.

• Sabri, R. C. (2014). *Evolution in design: myths and images in design process.* Parham Naqsh.

• Shariatrad, F., & Nadimi, H. (2016). Problem Framing: The Designer's Way of Tackling Design Problems. *Soffeh, 26*(3), 5-24. https://soffeh.sbu.ac.ir/article_100321.html?lang=en

• Snyder, J. C., McGinty, T. L., & Catanese, A. J. (1979). *Introduction to architecture*. McGraw-Hill.

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