INTUITION AND INTUITIVE THINKING IN ARCHITECTURAL DESIGN: THE CASE STUDY OF GÖN LEATHER FACTORY BY NEVZAT SAYIN

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ABSTRACT

INTUITION AND INTUITIVE THINKING IN ARCHITECTURAL DESIGN: THE CASE STUDY OF GÖN LEATHER FACTORY BY NEVZAT SAYIN

The concept of intuition has been one of the cornerstones of the philosophy of knowledge since antiquity. It has been used in different disciplines with distinctive meanings, but it has remained an unclear phenomenon. In particular, the term has been researched in philosophy and art, and the concept has been interpreted in different theoretical frameworks.

The discipline of architecture, which is related to these fields, is often considered to be a problem-solving effort. This view highlights the rationalization attitude in modern architecture. In addition to this rationality, the unpredictable, multi-disciplinary, and open-ended structure of architectural practice makes the concepts of intuition and intuitive thinking an inseparable part of the architectural design process.

Within the scope of the thesis, the role of intuition and intuitive thinking in the architectural design process has been examined. In the literature, commonly, architecture is interrelated with philosophy, art, and mathematics due to its scope. Moreover, intuitive thinking stands out as a concept related to the designer's historical background and level of expertise. In this framework, intuition in architecture is discussed in inference to the concept of intuition in philosophy, art, and mathematics and the idea of intuitive thinking based on experience.

In addition, the notion is a subjective concept, and it has a structure with different expansions on the subject scale. At this juncture, intuition and intuitive thinking are examined and analyzed through the works of Architect Nevzat Sayın.

Keywords: *Intuition, Intuitive Thinking, Architectural Design Process, Design, Expertise.*

ÖZET

MİMARİ TASARIM SÜRECİNDE SEZGİ VE SEZGİSEL DÜŞÜNME: NEVZAT SAYIN'IN TASARLADIĞI GÖN DERİ FABRİKASI VAKA ÇALIŞMASI

Sezgi kavramı, antikçağdan beri süregelen bilgi felsefesinin yapı taşlarından biri olma özelliğindedir. Bundan dolayı kavram farklı disiplinlerde, farklı anlamlarda kullanılmış ancak temelde belirsiz bir olgu olma niteliğini korumuştur. Özellikle felsefe ve sanat alanlarında sezgi ile ilgili araştırmalar yapılmış, düşünürler tarafından kavram teorik çerçevede anlamlandırılmaya çalışılmıştır.

Bu alanlar ile yakından ilişkili olan mimarlık disiplini, bazılarınca zihinsel bir problem çözme uğraşı olarak tariflenir. Bu görüş modern mimaride rasyonelleşme tutumunu, tasarım sürecinde ise rasyonel kararları ön plana çıkarmaktadır. Bu rasyonelliğin yanında, mimarlık pratiğinin ve özellikle mimari tasarım sürecinin öngörülemez, çok–disiplinli, içinde kendi gerilimlerini ve çelişkilerini barındıran çoklu yapısı, sezgi ve sezgisel düşünme kavramlarını da mimari tasarım sürecinin ayrılmaz bir parçası haline getirmektedir.

Tez dahilinde, mimari tasarım sürecinde sezginin ve sezgisel düşünmenin bu belirsiz rolü irdelenmiştir. Literatürde mimarlık, kapsamı gereği felsefe, sanat ve matematik ile ilişkilendirilmektedir. Sezgisel düşünme kavramı ise içerisinde barındırdığı ikincil ifadeler ile sezgi nosyonu ile yakından ilişkilidir. Sezgisel düşünme ise, tasarımcının daha çok tarihsel arka planı ve uzmanlık düzeyi ile ilgili bir kavram olarak öne çıkmaktadır. Bu kavramsal çerçevede, mimarlıkta sezgi kavramı felsefe, sanat ve matematik alanlarındaki sezgi kavramından ve deneyime dayalı sezgisel düşünme kavramından çıkarımlar yapılarak ele alınmıştır.

Bunlarla beraber, kavram kendi içerisinde barındırdığı dinamikler ile öznel bir kavram olmakla beraber, özne ölçeğinde farklı açılımlara sahip bir yapıdadır. Bu noktada, sezgi ve sezgisel düşünme Mimar Nevzat Sayın'ın çalışmaları ve mimari tasarım süreçleri üzerinden incelenmiş ve analiz edilmiştir.

Anahtar Kelimeler: *Sezgi, Sezgisel Düşünme, Mimari Tasarım Süreci, Nevzat Sayın, Tasarımda Uzmanlık*

To my family, Pamuk and Dino,

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CHAPTER 1

INTRODUCTION

1.1. Problem Statement

The practice of architecture has a complex structure that includes different factors. Within these dynamics, primary and secondary actors direct the flow in sensory, cognitive, and physical terms. The designer is one of the dominant actors in the architectural design process and the architectural discipline in terms of theory and practice. This dominance highlights a design process that changes, transforms, and develops with the designer's perspective.

While design stands out as an act of making, it is also considered to be a rational practice especially because it serves a purpose, and it requires justification for its decisions that need to be shared by other actors involved in the design process. A design process dominated by decisions based on reason is undoubtedly an essential tool to decide on what is “right” and what is “wrong”. Architecture is discipline in which the “right” and “wrong” are variable according to different parameters. That does not mean there cannot be an intersubjective discussion and agreement on some issues. Regardless, concepts such as aesthetics, sense, feeling, experience, and intuition have caused endless debates in architectural theory with the changing world conditions.

What cannot be rationalized with the solid, predictable, and sharp edge lines of rationality stays beyond the realm of rationality. As the dominant philosophy in the Western world since Descartes, rationality is not sufficient by itself to account for what goes on in the design process. This inadequacy has caused some abstract and unpredictable concepts to be attached to cognitive decisions, especially in architectural design. The meaning that the designer gives to the form while designing the architectural product is based on the architect's historical background, social norms, cultural codes, and traditions, all of which together create a set of loosely connected ideas and experiences that is the context within which rationality operates. At this point, it becomes a crucial issue to handle the designed architectural spaces with the designer's present and past thoughts and beliefs and intuitive insight.

With the dynamism of their personal experience, the designers constantly renew themselves by discovering the new. This personal accumulation creates a tradition in both collective and private life. These are accumulated, often unconscious, and fused in memory rather than individual states that are firmly fixed in memories (Benjamin 2002: 116). However, thanks to the dynamic structure of the experience, some attitudes that are accepted as a tradition at the scale of the individual can change and transform. While every single moment is unique, every experience that emerges from this innovation is also unique. This situation paves the way for the designer to form a flexible and unpredictable thinking structure in the face of new problems. In that sense, the design process turns into a flexible approach in which the new thing is always discovered, and styles and personalities are determined through the personal knowledge and experience of the designer.

By its very nature, the discipline of architecture is a mental problem-solving effort. This problem-solving action highlights the rationalization in the design process. Primarily, rationalism hosts a common belief that various problems posed by the real world can be solved through reason (Robertson 1912: 1-6). However, the unpredictable, multi-disciplinary, and multiple structures of the architectural design process, which contains many tensions and contradictions, reveal the problematic perspective of whether there can be some inputs that are beyond our rational grasp, such as intuition and intuitive thinking, in the design process. Other problems that such a question may pose are what the conceptual equivalent of such an automatic attempt can be in the discipline of architecture and what the content of the possible contributions of this concept to the architectural design process might be.

1.2. Aim and Scope of the Study

The main focus of the thesis is the role of intuitive knowledge and intuition in the architectural design process. In general, it is accepted that the architectural design process is based on rationality. Arguments made during the design process, research styles, and the original context of the decision-make are handled within the limits of logic. However, in addition to such analytical approaches, it is evident from the statements of some architects that the design process hosts some intangible concepts. One of these is intuition.

Intuition, an abstract but inexplicable phenomenon by its nature, has been dealt with from different perspectives in many disciplines (Westcott 1968; Shapiro and Spence

1997; Mintzberg 1976). Studies on intuition have continued throughout the history of thought, from the skeptics of antiquity to the analytical thinkers of today. Specifically, intuition is inquired in the writings of ancient philosophers such as Plato, and Aristotle. Therewithal some thinkers such as Henri Bergson, Edmund Husserl, and Martin Heidegger have tried to interpret the concept in a theoretical framework in the 20th century. In these disciplines, the concept has been described as a metaphysical insight and has remained "intangible and inexplicable".

Despite this metaphysical dimension of intuition, some researchers such as Seymour Epstein, Herbert Simon, and Robin Hogarth see intuition as a type of knowledge that settles in the memory after repeated experiences. Knowledge becomes explicit when it reaches the level of consciousness and is expressed in different forms of formal representation, such as words. This knowledge can be transferred and discussed. However, human consciousness is not limited to that knowledge type. Beyond explicit knowledge - and perhaps even more dominantly - there are other types of information that cannot be expressed and do not reach the level of consciousness. Implicit and intuitive knowledge invoke that which has not acquired such a level of consciousness or is difficult to express with language.

The complex nature of the architectural design process raises the issue of the role of the intuitive knowledge in the design process. While designing a building, the architect undoubtedly benefits from the sharpness of analysis and logic. Architecture is closely related to rationality. However, human is a living species with physiologically and cognitively complex structures. Our way of thinking does not follow a definite and rigid path as rationality stipulates. Every moment in the changing and transforming world shapes our personality as a subject and affects our thoughts. Our knowledge, which is sometimes layered as explicit and sometimes as implicit knowledge, is used repeatedly in different ways and with various elements in our later stages.

In this study, the structure of the architectural act is examined, and the layers of the architectural design process are investigated with a focus on the significance of intuition in the design process and its interplay with the rational. Therewithal, a literature review in philosophy, art, and mathematics was conducted to inquire the various interpretations of intuition. These chosen three disciplines, which closely interacted with architecture, are at a critical point in forming the study's theoretical framework.

In summary, the significance of intuition in the design process has been investigated within the thesis. As a result of this questioning, the role of intuition has been questioned

by interdisciplinary analysis. The problem, which was examined in the theoretical context, was then carried to the practical level with a case study. At this point, the primary purpose of the thesis is to inquire into the role of intuition and intuitive knowledge in the architectural design process and its developing and transforming role in this context by interdisciplinary questioning.

1.3. Literature Review

The word intuition appears in the literature as a noun derived from the Latin verb *"intueor"*[1] (Torrey and Leverett 1837). In the most general sense, the concept is seen as "the power of obtaining knowledge that cannot be acquired either by inference or observation, by reason or experience" (The Editors of Encyclopaedia Britannica 2012). In the Islamic encyclopedia, on the other hand, the concept was directed to the synonymous term *"hads"*, and it was explained as the immediate and unintentional grasping of a subject of thought (Hökelekli 1997). Contrary to these mystical definitions of the concept, Hançerlioğlu defines *intuition* as "knowing that occurs suddenly due to a specific accumulation of experience and thinking"[2] (Hançerlioğlu 1976: 73).

The differences in these definitions can be associated with the secondary meanings and terms that the concept contains. In this association, there are distinctive analyzes on whether intuition is a tool and what the value of such a tool might be. These analyzes examine intuition from two different points. The first focuses on the source (root) of the concept and the other on the subject (objects) of the concept (Table 1.1).

[1] See Torrey, H. Warren., and Leverett, F. Pervival. 1837. An English-Latin Lexicon, *p. 454.* "*Intueor; (in & tueor), eris, itus sum, dep. 2.* to look at or upon. To pay attention to, regard, keep before the eyes, observe, contemplate, consider. Also, to look towards, be situate towards" (Torrey and Leverett 1837: 454).

[2] Hançerlioğlu discussed the concept of *intuition* under seven headings, with different sub-meanings. These titles are; 1) Etymology, 2) Metaphysics, 3) Theology, 4) Psychology, 5) Sociology, 6) Education, and 7) Dialectical Materialism.

Table 1.1. The sources and subjects of the "Intuition" concept were analyzed through known people in philosophy, art, and mathematics (Prepared by author).

						Source	Subject	Associated Concept
INTUITION	Gnostics					Mystical	God	Gnosis
	PHILOSOPHY	Ancient Ages	Hellenic	Pre-Socratic	Heraclitus	Intuitive Reason	Concepts	Logos
					Parmenides	Reason	Concepts	Logos
				Socratic	Socrates	Reason	God	Daimon
				Great Socratic	Plato	Intuitive Reason+Soul	Ideas	Nous
					Aristotle	Intuitive Reason	Concepts	Nous
			Hellenistic	Plotinus		Intuitive Reason+Soul	God	Nous
		Middle Ages	Christian Philosophy	Patristic	Clement of Alexandria	Mystical Intuition	God	Gnosis
					Saint Augustine	Intuitive Reason	Ideas	Present
				Scholastic	William of Ockham	Experiences	Concepts	Occam's Razor (Novacula Occami)
			Islamic Philosophy	İbn-i Sina (Avicenna)		Reason	Existence	Middle Term
				Al-Ghazali		Mysticism	God	Divine Light
		Modern Ages	René Descartes			Reason	Object	God
			Immanuel Kant			Senses	Concepts	Categories
			Henri Bergson			Insight	Object	Duration (durée)
			Phenomenology	Edmund Husserl		Transcendental	Essence	Phenomenological Method
				Herbert Spiegelberg		Patience+Effort	Essence	Phenomenological Intuiting
				Martin Heidegger		Experiences	Essence	Hermeneutic
	ART	Friedrich Schelling				Divine Inspiration	God	Absolute
		Benedetto Croce				Image	Esthetics	Everyday Intuition
		Martin Heidegger				Experiences	Essence	The Origin of the Work of Art
	MATH	Henri Poincaré				Experience	Non-Euclidean Geometries	Process
		Luitzen Egbertus Jan Brouwer				Intuitive Time	Mathematical Objects	Intuitionism
		Kurt Gödel				Senses	Mathematical Objects	Mathematical Intuition

In the literature, there are three different interpretations regarding the source of intuition. Intuition is sometimes associated with mind, sometimes with senses, and sometimes with a mystical experience. However, recently, this intuition has begun to be associated with historical backgrounds and experiences. Therefore, the situation that the source of intuition is different raises the following question: Is intuition related to the mind, senses, mysticism, or to individual's experience? On the other hand, the subjects of intuition can be universals, concepts, sensory objects, essences of things, and unspoken concepts such as duration or divine. At this point, the following question arises: Does the subject of intuition belong to the world of ideas, or does it belong to another realm above the mind?

In parallel with this content and the thematic difference of the concept, the interdisciplinary historical development of intuition can be shown. Intuition comes to the fore in philosophy, art, and mathematics, sometimes on the same plane and sometimes with its opposite features. However, besides this contrast, the subjectivity of concept as the common denominator remains (Figure 1.1).

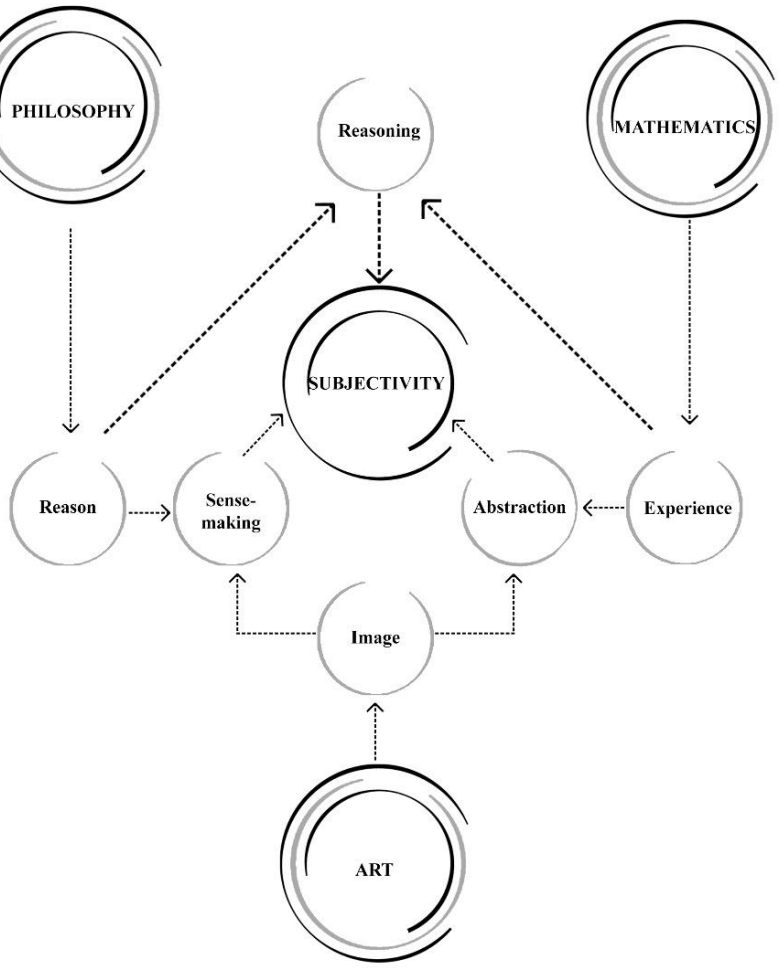

Figure 1.1. Interdisciplinary correlation diagram of intuition (Prepared by Author)

Although the expansion of the theory in philosophy is epistemological, intuition has an essential input in the notion of truth. For Plato, Spinoza, Locke, Hume, Bergson, Croce, and others, intuition was seen as a permanent, universal, ultimate truth or a non-sensuous way to reach reality. Through intuition, one can feel to be in direct contact with the ultimate truths of the universe, the fundamental certainties of reality, the ultimate nature of life, or divine. This extreme position, called "philosophical intuitionism", leads intuition to the knowledge of realities different from those that can be known through the senses and reason.

The concept was introduced in philosophy with the ancient Greek philosophical works and was handled by the leading thinkers of the period such as Heraclitus, Parmenides, Socrates, Plato, Aristotle, and Plotinus. Although intuition continued to preserve its mystical character in this period, the concept was mainly associated with pure reason. However medieval philosophy, which developed during the medieval period, did not change the conceptual structure of the notion, it caused it to be questioned in the context of the related disciplines. Different philosophers such as Clement of Alexandria, Saint Augustine, William of Ockham, Ibn Sina, and Al-Ghazali have seen the concept as a means of communication with divine in the field of religion. In the modern times, which is the continuation of medieval philosophy, intuition is considered a knowing ability used in reaching knowledge. René Descartes, Immanuel Kant, Henri Bergson, Edmund Husserl, Herbert Spiegelberg, and Martin Heidegger evaluated the concept based on more profound facts, especially from an epistemological point of view. In this period, a different perspective was proposed by associating intuition form based on reason with the senses. The use of intuition to conceptualize through senses has also contributed to forming different philosophical movements, such as phenomenology.

When we look closely at the use of intuition in philosophy, it is understood that the concept's scope is not limited to epistemology; it has an essential function in moral philosophy and even in the philosophy of art. Philosophy and art, throughout their history, have conducted an inquiry into what they are by probing their boundaries. As a result of this investigation, the aim and method of philosophy with every thinker and art with every art movement have been renewed. The artworks have become the field of ontological investigation, pointing to the distinction between the visible and the invisible in practical experience. One of the cornerstones of this questioning about existence is the concept of intuition. Because, in art, value judgments are often intuitive and contrast with mutual judgments (Perkins 1977: 121).

Besides art, another discipline in which the concept of intuition is used from a critical point of view is mathematics. In the discipline of mathematics, intuition can be considered as the result of a way of thinking that develops on mathematical objects. Questioning the mathematical objects' existence led mathematicians of the 18th and 19th centuries to turn to other views apart from Formalism and led to the prominence of intuitionism in mathematics. That questioning of analytics and logic in the discipline of mathematics based on rationality is a critical example of understanding the semantic framework of the concept of intuition in that discipline.

It is seen that the source of intuition is defined as the reason or sense in philosophical subjects starting from ancient times to the modern period, and various interpretations are made of this definition. The most important common denominator of these views is that they are seen as a metaphysical insight against the differences put forward in terms of the source of intuition. On the contrary, intuition is interpreted through a particular experience and knowledge in the modern thought system. With this explication, intuitive thinking comes to the fore in decision-making theories (Table 1.2).

Table 1.2. The sources and subjects of the “Intuitive Thinking” concept were analyzed through known people in terms of decision-making tools and behavioral economics (Prepared by author).

			Source	Subject	Associated Concept
INTUITIVE THINKING	**Decision-Making**	Herbert Simon	Expertness	Implicit Knowledge	Bounded Rationality
		Robin Hogarth	Expertness	Implicit Knowledge	"Kind" "Wicked" Conditions
		Malcolm Gladwell	Subconscious	Adaptive Unconscious	The Theory of Thin Slices
		Mark E. Quirk	Expertness	Implicit Knowledge	Metacognition
	Psychology	Carl Gustav Jung	Subconscious	Implicit Knowledge	Perception Via the Unconscious
		Edward de Bono	Experiences	Implicit Knowledge	Inexpressible
		Seymour Epstein	Subconscious	Implicit Knowledge	Dual - Process Model
		Gary Klein	Expertness	Implicit Knowledge	Recognition Primed Decision
	Behavioral Economics	Daniel Kahneman	Experiences	Implicit Knowledge	Dual - Process Model
		Dan Ariely	Subconscious	Implicit Knowledge	Predictably Irrational

According to Herbert Simon, who is known for his research on decision-making, intuition is a non-irrational process in which mysticism and magical sixth sense do not occur (Prietula and Simon 1989: 122). According to him, acquiring intuition has a similar meaning to shaping habits of attention (Simon 1987: 63). Robin Hogarth, like Simon, associates a person's proper and correct intuitive way of thinking about an issue with that person's expertise on that matter (Hogarth 2014: 74). Based on this definition of Hogarth, Mark Quirk researched intuition in the field of clinical medicine (Quirk 2006c). As a result of a series of studies, Quirk associated intuition with expertise but stated that intuition could sometimes contradict the observed reality (Quirk 2006a: 38). Kahneman and Tversky studied the cognitive illusions caused by intuitive thinking with their heuristics and biases studies and questioned the reliability of such decisions (Tversky and

Kahneman 1974). According to another economist, Ariely, shortsightedness, and irrationality are very common in decision-making (Ariely 2008).

It is seen that the role of intuition and intuitive thinking in the architectural design process is sometimes associated with expertise, and sometimes it is discussed from a phenomenological perspective. American architect Louis Kahn is one of the architects who attaches importance to the concept of intuition in the discipline of architecture. He divides it into two main headings as light and silence (Kahn 1969). Architect Peter Zumthor, closely related to phenomenology, deals with the notion of intuition with connotations through the concept of atmosphere as a base on which he creates space fiction in design processes (Zumthor 2006). For Juhani Pallasmaa, intuition is essential to the body and the multiple senses (Pallasmaa 2005). Moreover, for Steven Holl, intuition is a muse (Holl 2016: 48). Greg Lynn, interested in computer-based design, thinks a prerequisite of intuition is rigour and knowledge (Rocker 2006).

1.4. Methodology

A literature review, including critical people and opinions, gave a conceptual basis to this thesis. In particular, related books, journals, and scientific articles were separated on the scale of different disciplines and indexed. The organized data was examined under different secondary and tertiary sub-titles and discussed at the point of solving the problem of what the conceptual equivalent of the term intuition in architecture could be.

The main issues covered in the thesis are the concepts of intuition and intuitive thinking. Intuition has been examined in reference to discussion in three primary disciplines related to architecture: philosophy, art, and mathematics. At this point, the opinions of influential people who have made a name in their field about intuition are included. After that, they are compared, and attention is drawn to the conceptual similarities and differences.

The concept of intuitive thinking has not been considered a subject independent of intuition but is closely related. Intuitive thinking is dealt with under two sub-titles following the literature review. These are the terms intuition as a decision-making tool and the term intuition with behavioral economics.

Afterward, the concept of intuition in architecture is discussed at the junction of the concepts of intuition and intuitive thinking. At this point, architects, designers, and design theorists interested in the discipline were determined through literature review and

examined through their ideas. The analyzed data was indexed in the context of design and architectural design, and the conceptual basis of the role of intuition in the architectural design process was created.

In light of this analysis and compiled information, the role of intuition in the architectural design process has been completed with a case study. As a case study, three-stage one-to-one interviews, two of them online and one of them not online, were conducted with the architect Nevzat Sayın. In this context, the judgmental sampling method determined the selected sample, one of the non-probability sampling methods. Nevzat Sayın's importance attached to the concept of intuition in his professional competence can be seen in his interviews, writings, and manifestos (Yücel and Sayın 2000; "Nevzat Sayın - NSMH" n.d.; Sayın 2018; Damla 2018).

In this context, to support the theoretical discussions in the thesis, a one-to-one interview was conducted with Nevzat Sayın during the process, and qualitative methods were adopted for evaluation and analysis. A one-to-one interview was held with him online in two different periods, and all of these interviews were analyzed and added to the thesis.

1.5. Structure of The Study

This thesis consists of six chapters in total. While the first chapter is an introduction to the study, it outlines the theoretical framework of the thesis. In addition, this chapter includes the methodological tools used in this framework's context and the thesis's aim and scope.

Chapters 2 and 3 introduce the theoretical basis of the thesis. In these chapters, the primary theoretical debates are discussed, and the literature study results are introduced. The second part is where the concept of intuition, divided into two in the thesis, is examined. Here, the arguments of different thinkers, which will later be linked with the concept of intuition in the architectural design process, have been put forward. These thinkers are discussed in the context of philosophy, art, and mathematics, which are closely related to the architectural discipline. In order not to go out of this section's scope, only opinions about intuition and related concepts are included. Chapter 2, which includes semantic and contextual similarities and differences over the same concept, stands out as a comprehensive literature review.

In the third chapter, the second concept, the concept of intuitive thinking, is discussed. Intuitive thinking is also divided into two and discussed in the context of decision-making literature and behavioral economics. Unlike intuition, the concept that comes to the fore in decision-making mechanisms is described as a cognitive action. However, the important thing here is that the concepts of intuition and intuitive thinking are not considered as different. As a result of the literature review, it has been seen that although the two concepts have similar conceptual equivalents, they may have different subtitles.

In chapter 4, the status and role of intuition in the architectural design process are examined by referring to the conceptual equivalents in chapters 2 and 3. At this point, that section is divided into three sub-headings in itself:

1. "The Design Term" section is a compilation of the structure of the design.
2. "The Alteration of Architecture and The Architectural Design Process" section provides historical background about the content of the architecture and architectural design process.
3. "In The Role of Intuition in The Architectural Design Process" section stands out as a core part, and the role of intuition in the architectural design process has been handled here.

In the last section, five selected architects and their views on the concept are given in their one-to-one expressions. Their ideas and related quotes were analyzed, and a framework was created for the role of intuition in the architectural design process.

Chapter 5 is the case study section that analyzes the interviews with Nevzat Sayın. In that chapter, intuition and intuitive thinking in the architectural design process are discussed in reference to his work and his design process.

The abstract structure of the concept of intuition undoubtedly excludes precise statements from the scope of the thesis. In chapter 6, concepts, frameworks, and main arguments are discussed side by side. However, the intangible and inexplicable nature of the concept enables the thesis to open a door of possibility instead of reaching a definite conclusion.

CHAPTER 2

THE RELATION BETWEEN INTUITION/INTUITIVE THINKING AND ARCHITECTURAL DESIGN PROCESSS

Architecture is one of the disciplines in which rationality is at the forefront. However, in addition to the rationality, some sensual phenomena can also be seen as the actors of the architectural design process, like aesthetics, sense, feeling, experience, and intuition. Among these actors, the concept of intuition directs design to the context of "designer".

In this section, the original context of the design action was examined. Thus, the framework of the architectural design act was revealed. Afterward, the design approaches put forward in the architectural design process are discussed. In this way, the structure of the design and secondary expressions suitable for this structure were tried to be reached.

Subsequently, architects whose expressions, writings, and discourses seem to have an active role in the design processes of intuition and their quotations have been examined. This is because intuition is an abstract concept. Architects who think that intuition is a valid mechanism are critical for understanding the concept. Some parameters that make up the designer's identity is the creative backbone formed by the concepts of experience, emotion, thought, and intuition, which are the internal factors that activate the design in the production of design space.

Design and architectural design have an indefinite and unpredictable structure that works dialectically and is integrated with different disciplines. This structure differentiates the architectural design process from analytical processes and methods that proceed linearly and sequentially, each step necessitates the next, and thus a single and absolute answer is reached. Within these uncertainties, the architectural design becomes a "search process" (Dorst 2003: 137) for some designer and architects. This search process proceeds through a design problem. At that point, according to Dorst (2003) "the design problem defines the 'problem space' that has to be surveyed in search of a design solution" (p.137). The product, the result of the search process, is a self-consistent suggestion brought into a situation rather than being the correct answer to a defined or undefined problem. The degree of consistency of this proposition is closely related to the definition of the problem. According to Simon (1973) "an ill-structured problem is

usually defined as a problem whose structure lacks definition in some respect" (p.181). In such a problem it will be more difficult to move the process forward in a valid way. To understand whether a design problem is defined or ill-defined, it is necessary to examine the structure of the design concept.

2.1. The Structure of Design Term and Design Approaches

Vilém Flusser mentions that the concept of "design" in English derives from the prefix "sign", meaning "a sign of the times, a sign of things to come, a sign of membership" (Flusser 2013: 17-21). While questioning the current meaning of the design, he considers the concept of "design" both as a noun and a verb. According to Flusser (2013), design "as a noun, it means -among other things- 'intention', 'plan', 'intent', 'aim', 'scheme', 'plot', 'motif', and 'basic structure', and all these (and other meanings) being connected with 'cunning' and 'deception'. As a verb ('to design') meanings include 'to concoct something', 'to simulate', 'to draft', 'to sketch', 'to fashion', 'to have design on something" (p.17).

The Greek word for "design" corresponds to *σχε′διο*[3] and is derived from the root *σχεδο′ν*[4], meaning "almost". This original context connects the name "design" with the Greek meaning of incompleteness, indefiniteness, and imperfection, and the concept is also related to likelihood, expectation, and anticipation. From this perspective, "design", in its broadest sense, expresses the effort to capture the ambiguous or abstract and, moreover, the difficult to understand (Terzidis 2007: 69).

Design has a complex structure that includes different sub-layers. The conceptual design process, one of these sub-layers, is described as a process where many strategies are sought, from an abstract problem to the elaboration of the definition of the problem (Gero and Mc Neill 1998: 23). In this context, the definition of the problem has a critical importance in terms of the methods to be used in the design process. For instance, Terzidis (2006) states "some theorists have argued that many problems cannot be solved algorithmically, either because the procedure leading to their solution is ill-defined […]. Such problems make it necessary to use heuristic and adaptive decision procedures." (p.45).

[3] pronunced: schedio
[4] pronunced schedon

The design phase, during when many new ideas are developed, plays a vital role in connecting and developing different design ideas (Lai and Chang 2006: 690). The design activity at the conceptual design stage has been investigated using different approaches. Some of these are reflection-in-action (Schön 1985), knowledge-based design system (Coyne 1990b), cognitive task (Akın 1986), and problem-solving process (Simon 1996).

According to Donald Schön, "reflection-in-action" forms the basis of any design process (Schön 1987: 44). The initial condition for reflection in action is the knowledge that emerges in intelligent actions. Schön (1987) describes this situation as "knowing-in-action". Knowing-in-action is vague and spontaneous professional knowledge that cannot be learned from books and cannot be described fully/precisely (p.25). It consists of strategies for action, ways of understanding events and phenomena, and framing problematic situations encountered in everyday experience, and is achieved through "training" or "on-the-job" (Schön 1985: 24).[5] For this reason, Schön opposes a linear and technical problem-solving process. This approach of Schön has been groundbreaking in design models in that it simultaneously gives both professional expertise and intuition and equivalent roles.

One of researcher who focus on design act is Richard Coyne. He classifies the design as an ill-defined or wicked problem, because during design the purpose may change, the start and end points may shift (Coyne 1995: 227). At that point, according to him design is a knowledge-based activity. Coyne (1990a) states that, "design relies heavily on the ability to recall ideas." (p.92). Therefore, the design action is shaped by the information obtained before. This definition can be considered a general interpretation of a "back-reading". Previous events and memories can be recalled, which can affect the decision-making process in design.

Ömer Akın divided the design activity into its components. According to him, while analysis stands out as a part of all design stages, synthesis is a phenomenon supported by intuition and emerged in the early stages of the design stage (Akın 1986: 166). According to Akın (1986) design knowledge is divided into three: "problem-solving, physical intuition, and inductive reasoning" (p.168). However, he mentions that the conceptual design model includes three different types of knowledge; knowledge for search, knowledge for representation, and knowledge for reasoning (Akın 1986: 163). While representation stands out as physical intuition, it is defined as an essential part of design

[5] According to Schön, this implicit knowledge inherent in design can only be learned in the unique environment of the studio (Schön 1985).

synthesis. This activity plays a vital role in a design problem and appears both as a graphic domain (externally) and an imagery domain (internally) (Akın 1986: 166).

Viewing design as a problem-solving process is a joint research topic (Lawson 2006; Simon 1996). The problem-solving phase is defined by the phases of perception, definition, analysis, planning and prediction, alternative generation, evaluation, and synthesis (Salama 1995: 87). In addition to its relationship with the concept of design problem-solving and decision-making, its relationship with experience and the notion of intuition is also discussed by some researchers. According to Sanoff (1977), intuition as a spontaneous result of past experiences is a valuable process for problem-solving action (p.11). On the other hand, the design aims to function in the area between traditional methods based on intuition and experience (Sanoff 1977: 94).

2.2. Intuition in The Architectural Design Process

The architectural product presents meaning to the user in the sensory and cognitive field through design. Therefore, architecture is not only a platform that presents physical features but also a discipline that makes sense by presenting impressions, ideas, and facts (Aydınlı 1993). The meanings that the designer gives to the form while designing the architectural product is based on the designer's historical background, social acceptances, cultural codes, and traditions. At this point, it becomes an important issue to handle the designed architectural spaces with the thoughts and beliefs of the designer subject at the design stage and intuitive insight.

In this context, it is possible to talk about two different actions and decision-making processes during the architectural design process: Deliberative and intuitive actions. Contrary to rational actions and decisions, it is not easy to define the intuitive actions and decisions. Both approaches produce direct knowledge regardless of their structural differences. An outcome of analytical studies is a finding and makes knowledge possible. However, knowledge is also a phenomenon that has relation with experience (Tulving 1989: 22). The experience mentioned here includes all kinds of practices, and moreover, is related to expertise. Knowledge-experience-expertness relation has been handled on a cognitive level by many researchers such as Herbert Simon, Robin Hogarth, Mark Quirk, and Gary Klein. In addition to them, for instance, Jonassen and Hernandez-Serrano (2002) criticized Klein's experiments as "experts relied more heavily on cases based on past experience than on abstract principles when making decisions with a high degree of

uncertainty" (p.68). One of the main reasons for this is that experts and novices use the same information in different ways. For example, as a result of their cognitive experiments Perez et al. (1995) state "experts and novices were provided with the same information in the think-aloud design task. However, they defined the problem differently, employed different processes, used different sources of information, and provided solutions that were for essentially different problems." (p.343). At that point the contribution of experience to the formation of knowledge as an origin reveals the place of intuition in architectural design.

The place of science in design is drawn with very sharp lines. According to the traditional definition, while scientists focus on analyzing existing phenomena, the architect aims to create practical buildings. This causes the scientist's work to be characterized as analytical and the designer's work as a derivational, generic, synthetic action. In the architectural design process, the cultural accumulation in the designer's infrastructure and the atmosphere formed during the design are combined thanks to intuition. This role of intuition in the architectural design process has been examined repeatedly through different architects in different periods.

Louis Kahn describes intuition as one of man's most extraordinary talents for producing architecture. According to him, intuition and emotion are notions that do not need to be verified by empirical means and are superior to knowledge (Williamson 2015: 34). This state of being superior reveals an essential relationship between architectural drawing and intuitive thinking (Williamson 2015: 96). For example, in the sketches of Louis Kahn's travel to Europe, a captured knowledge of light and structure can be mentioned beyond images and memories (Figure 2.1). Gülgönen (2017) explains this situation as follows "Because, according to an architect, the whole world exists within his own field of architecture; Passing by a tree, he does not see it as a botanist, but associates it with his field. He will draw the tree as it has grown, because he thinks in terms of the act of building it" (p.332).

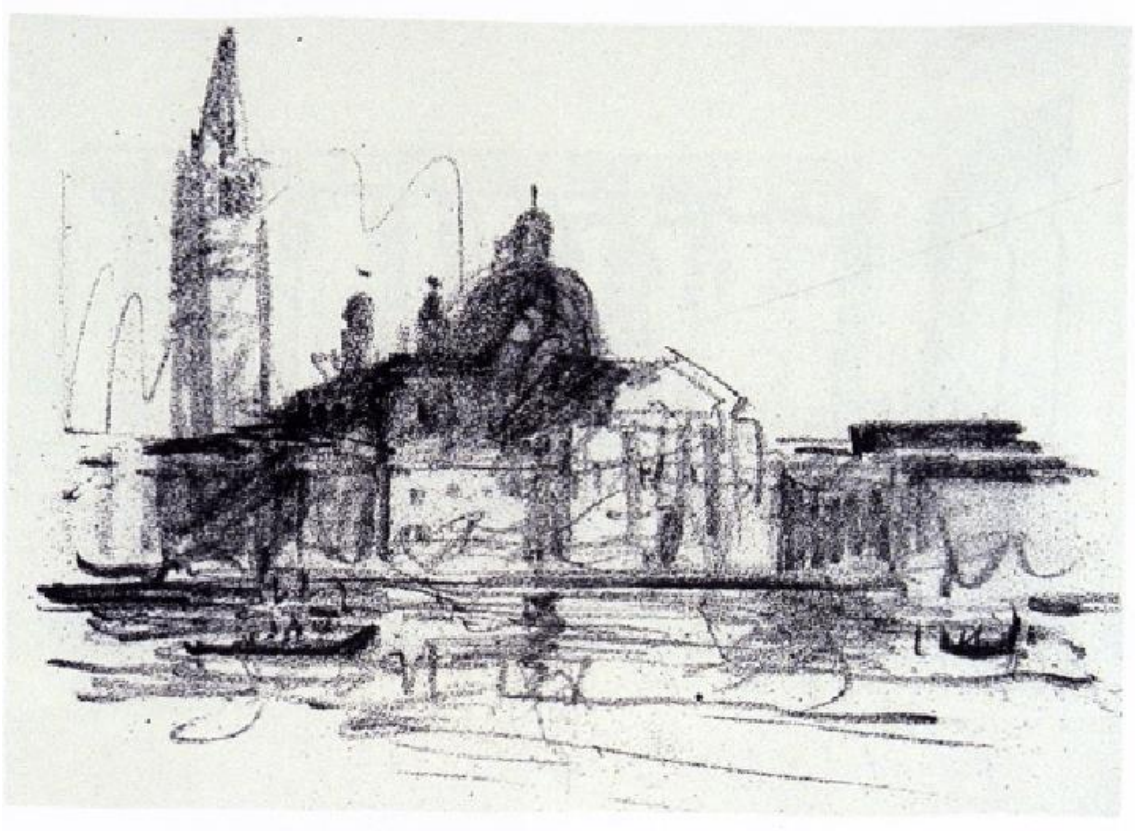

Figure 2.1. Louis Kahn. San Giorgio Maggiore. 1928-29.
(Source: Johnson, 1996)

Moreover, Kahn distinguishes between the analytical and the intuitive. According to him, intuitions are in a stronger position than analytical capacities (Williamson 2015: 15). However, this does not deny the necessity of the analytic. Because while intuition is required to find the "What", what is needed to find the "How", which is essentially analytical. However, the first notion necessary for the architectural potential of a building to emerge is "What" (Williamson 2015: 31).

During his studies, Kahn focused on architectural creation over the semantic relationship he established between "light" and "silence" (Kahn 1969). Architecture is at the meeting of silence and light. There are measurable and unmeasurable values for these two concepts that stand out in this meeting. While the metaphor of light stands out for measurable values and is a part and determinant of all beings, some unmeasurable values turn from silence to existence through light. According to him, immeasurability is a force that asserts the creative spirit after measurability (Lobell 1979: 14). [6]

[6] Kahn sees man as a special meeting of the quantifiable and the immeasurable. This meeting can be seen in the game between quantifiable knowledge and immeasurable intuition. In another saying, "the brain" is acquired from nature and subject to conditions, and "the spirit" is eternal.

In his book “Between Silence and Light” (1979), John Lobell mentions that Kahn is looking for beginnings. In other words, Kahn seeks the roots of pleasure and curiosity, reason and intuition, and the fundamental principles of existence that he calls light and silence (Lobell 1979: 3-4). In this context, Kahn uses the word “silence” for those who have not been measured or have not yet been (Brownlee 1991: 128). Silence is essentially a secondary sub-name he gives to intuition (Williamson 2015: 90). Natural light is the tool he uses, and he cannot give up while constructing these unmeasurable values in space because natural light gives existence to everything. In this context, while some matters that cannot be measured move from silence to existence through light, the intuition that finds its place in silence stands out as an indispensable tool of existence.

Everything has an order; The wind, the materials, the being. According to Lobell, Kahn is in contact with “order” in two ways. The first is the method of direct questioning, evident from his conversation with the brick; Brick, what do you like? Kahn states that the same conversation will be made with any material or with nature itself. The second way is for Kahn to look within himself. Order governs the making of all that is done, and in everything, it has a record. This recording is essentially intuition. According to Lobell (1979) “in the intuitive are recorded all the great steps of the making in which momentous decisions were made” (p.12). For this reason, intuition stands out as the most fundamental sense. Therefore, Kahn would consult his intuition about the origins. According to him, creation is not just something that happened in the past; it is a phenomenon that happens every moment (Lobell 1979: 63).

The concept of existence and existence has recently started to be associated with architecture with the writings of the philosopher Martin Heidegger. In this context, Heidegger made essential contributions to architectural thinking. His text, titled “Building, Dwelling, Thinking”, influenced many architects and architectural theorists, who were essential in making sense of the relationship between architecture and phenomenology and transferring phenomenology to architecture. Alvar Aalto, who is known to have Heidegger's text on the writing desk always, transfers sensory sensitivity to his spaces and writings, Dalibor Vesely discusses the crisis of representation, Christian Norberg-Schulz writes about the *genius loci*, Peter Zumthor transfers the power to create an atmosphere to spaces, Juhani Pallasmaa emphasizes the importance of the multi-sensory system, and Steven Holl writes about the architectural style. They all were inspired by Heidegger's thoughts (Sharr 2007). In contrast to the sharply drawn analytical

aspect of architecture, this inspiration has enabled it to become an important topic of architecture in terms of its human-making features.

Swiss architect Peter Zumthor is a member of a traditional European family with a strong belief in the craft. After Zumthor's education, he started to work in his father's workshop, and he attended a vocational school, received a carpentry education, and became interested in wood.[7] The effects of the material knowledge he learned during this period can be seen in details of the Bruder Klaus Chapel he designed (Figure 2.2).

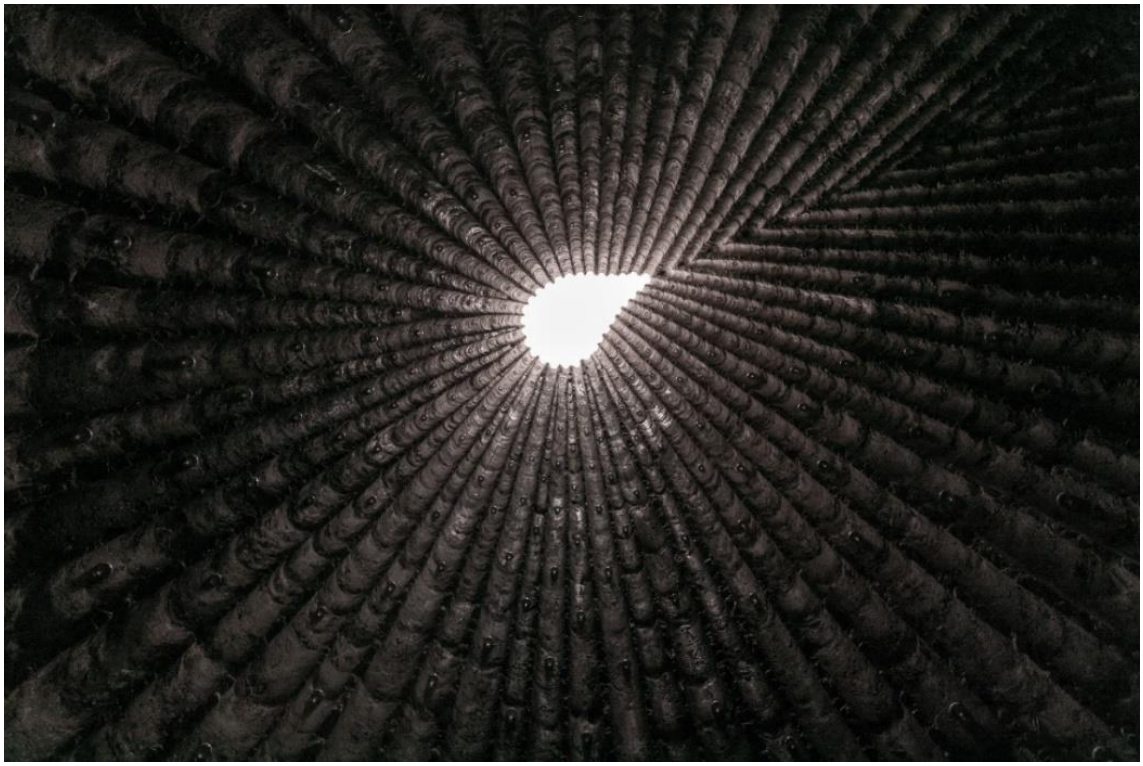

Figure 2.2. Bruder Klaus Field Chapel's top detail, Peter Zumthor.
(Source: Florio, 2022)

Zumthor explains architecture as a work of creating an atmosphere on which experience is based. In his book "Atmospheres: Architectural Environments - Surrounding Objects" (2006), he traces the atmosphere while designing and living in space. Zumthor focuses on objects, images, and dialogue with space in his book. He builds his phenomenological approach on nine factors to understand the objective aspects

[7] This closeness of Zumthor to the material is associated with phenomenology, which he philosophized in later periods. As mentioned in philosophy, phenomenology, which makes objects perceived with their essence independent of their existence, is "What is the phenomenon (essence) of the building?" in architecture. According to Zumthor, it is the perception and feelings created by the space in the user with the effect of this core material.

of the atmosphere and construct the atmosphere of space. This atmosphere created by the architect is essential to offer the user a structure that stands out with its spontaneity:

> In a fragment of a second you can understand: Things you know, things you don't know, things you don't know that you don't know, conscious, unconscious, things which in a fragrant of a second you can react to: we can all imagine why this capacity was given to us as human beings - I guess to survive. Architecture to me has the same kind of capacity. It takes longer to capture, but the essence to me is the same. I call this atmosphere. When you experience a building and it gets to you. It sticks in your memory and your feelings. I guess thats what I am trying to do. (Zumthor cited in Merin 2013)

This relation is based on associations. According to Zumthor, at every moment of life, when listening to music, watching a movie, or entering a place, all senses are activated through sound, smell, and color imprisoned in the memory. In this context, people's intuitive awareness of events without seeing or touching them depends on their experiences and the relationship of the moments they live with the space. Zumthor states that he mainly uses these connotations while creating his design process. However, the source of these associations is sometimes architectural expertise and sometimes small but valuable moments in life. Zumthor (1998) expresses this situation with the following words:

> There was a time when I experienced architecture without thinking about it. Sometimes I can almost feel a door handle in my hand, a piece of metal shaped like the back of a spoon.
> I used to take hold of it when I went into my aunt's garden. That door handle still seems to me like a special sign of entry into a world of different moods and smells. (Zumthor: 9).

Zumthor thinks that objects, events, and even animals passing by leave traces in human memory and remind the place where one is in the moments that are met again with them. Thus, an endless transition between times and places is provided. However, for example, the presence of a different color in the same space, hearing different sounds, and the occurrence of different events change the atmosphere of the space. In other words,

murdering in an ice-skating area places the events in people's memories. Thus, all experiences in a place become experiences and remind themselves over time. This recall and reminder stand out as an intuitive action.

In this context, Zumthor focuses on the potential of architecture to create associations and make sense. The purpose here is not to provoke a set of defined emotions but to allow them to emerge. The desire of the architect to create a building that does not represent anything but only references itself finds its way into associations. According to him, such architecture will allow the meaning to emerge spontaneously, and the structure designed in this way will be open to various meanings (Zumthor 1998: 34).

Therefore, the starting point in Zumthor's architectural practice is not reflection or application but design. While the Swiss architect states that he does not work with a theory, he directly starts with the design; he points to the images in his mind as the starting point. These are images or visual contexts embedded in his memory or that he conjures up by thinking about a place or program. After that, these can be expressed as an intuitive discovery rather than a rational process. Zumthor (1998) expresses this situation:

> So, what moved me? Everything. The things themselves, the people, the air, noises, sound, colours, material presences, textures, forms too, forms I can appreciate. Forms I can try to decipher. Forms I find beautiful. What else moved me? My mood, my feelings, the sense of expectation that filled me while I was sitting there. Which brings that famous Platonic sentence to mind: 'Beauty is in the eye of the beholder.' Meaning: it is all in me. But then I perform an experiment: I take away the square – and my feelings are not the same. An elementary experiment, certainly – please excuse the simplicity of my thinking: I remove the square and my feelings disappear. I could never have had those feelings without the atmosphere of the square. It's quite logical really. People interact with objects. As an architect that is what I deal with all the time. Actually, it's what I call my passion. The real has its own magic. (Zumthor: 16)

In such an exploration, Zumthor talks about 'images' for the designer's background, not knowledge and memories. Personal accumulation is instead accumulated and often unrecognized than the individual states that are firmly fixed in the memories; however, they are found fused in the memory (Benjamin 2002: 388-389). In this context, image creation is a concept related to past experiences and instant sensations (Lynch 1964: 4).

Once built in the minds, it creates a common sense of validation in everyone's perception. According to Zumthor, the designer's accumulation is stored in this way as images. The mind then uses this storage action and its results as data in intuitive reasoning. However, this retrieval, mapping, and transfer operations are cognitively much more complex processes. This may be why all of Zumthor's structures do not have common signs in the formal and stylistic context, and it is impossible to predict and recognize the features of one of its structures and the other.

Another architect and theorist who emphasizes the importance of intuitive knowledge in architectural design is Juhani Pallasmaa. According to Pallasmaa, every impressive architectural experience is multi-sensory. The result of this multiplicity is that each sense organ, skeletal and muscular system have an equal share in understanding the qualities of spaces. In other words, the architecture includes many sensory experiences that fuse and interact with each other rather than just seeing (Pallasmaa 2005: 41).

Psychologist James Gibson proposes overlapping systems rather than five disjointed senses. According to him, these five sense systems generally focus on the same information. In other words, information can be received by a perceptual system alone or by a combination of perceptual systems (Gibson 1968: 4). Philosopher Rudolph Steiner states that at least twelve senses are used when perceiving the environment (Pallasmaa 2005: 42).[8] The senses cannot be separated from each other with specific lines. Moreover, each one is loaded with a meaning that equates it with the qualities of the other senses and opens the door to qualities peculiar to the other. Therefore, the results are much stronger when the senses are operated together and stimulated at the same time.

Pallasmaa states that the hegemony of the eye could be considered as a 17th-century phenomenon, despite its foundations in Greek thought (Figure 2.3) (Pallasmaa 2005: 34-35). According to Pallasmaa, in the Renaissance, the five senses were hierarchically ordered as seeing as the highest sense and touching as the lowest sense. Against this dominant role of the act of seeing, Pallasmaa associates touch with seeing, based on the ideas of George Berkeley and Merleau-Ponty (Pallasmaa 2005: 42). According to him, the visual perception of distance and spatial depth cannot be sufficient without the sense of touch. Therefore, all senses are extensions and specialized states of the sense of touch. This situation again emphasizes the important role attributed to the concept of the body.

[8] Those are; According to Steiner (1981) "1) Sense of Touch, 2) Sense of Life, 3) Sense of Movement, 4) Sense of Balance, 5) Sense of Smell, 6) Sense of Taste, 7) Sense of Sight, 8) Sense of Temperature, 9) Sense of Hearing, 10) Sense of Speech, 11) Sense of Thought, and 12) Sense of Ego" (p.13).

Pallasmaa (2005) expresses the importance of the body in architecture and art in his work titled “The Eyes of the Skin”:

> I confront the city with my body; my legs measure the length of the arcade and the width of the square; my gaze unconsciously projects my body onto the facade of the cathedral, where it roams over the mouldings and contours, sensing the size of recesses and projections; my body weight meets the mass of the cathedral door, and my hand grasps the door pull as I enter the dark void behind. I experience myself in the city, and the city exists through my embodied experience. The city and my body supplement and define each other. I dwell in the city and the city dwells in me. (Pallasmaa: 40)

Figure 2.3. Herbert, Bayer. The Lonely Metropolitan, 1932.
(Source: Pallasmaa, 2005: 28)

According to Pallasmaa, sensory experiences are integrated through the body. This situation can also be explained as the expression of the things that arise from the coexistence of the pure state associated with the body and its environment. At this point, the space's current potential is that it constantly interacts with the body and its environment, and they try to explain each other. Despite this situation, as Pallasmaa has stated, the understanding of architecture is maintained through a single sense, sight. However, architecture is a discipline that appeals to all senses and can be internalized in the integrity of these senses.

These thoughts of Pallasmaa should be considered from two different perspectives.[9] The first of these is the cognitive processes of a user when perceiving space, and the other is the cognitive processes of an architect when designing a building. For example, the body plays a vital role in the user's perception scale, as Pallasmaa mentioned. This situation emphasizes an integrated phenomenon in the perception of space that develops depending on the user's intuition. However, another perspective is the understanding of the body, which is examined at the scale of the architect or designer rather than the user. The architect, who assumes the creative role, can realize the act of designing with his own body, with the images and expressions the architect perceives, understands, or feels throughout his life.

Another architect with similar ideas to Zumthor and Pallasmaa is Steven Holl. Holl, who made inquiries on architecture, discovered phenomenology, which would form the intellectual basis of his architectural practices. Holl transferred the existentialist phenomenological approach of Heidegger, and the living body concept of Merleau-Ponty to the field of architecture. Merleau-Ponty touched upon the internal relationship between the body and the world. He explained that these two could not be considered independently with the definition of intertwining of the one in the other. Holl, referring to Merleau-Ponty, expressed the relationship between idea and phenomenon in architecture with the term “intertwining of idea and phenomena” (Figure 2.4) (Holl 1991: 10-11). Therefore, his way of doing architecture can be considered an area where different layers are detailed to obtain a design. The coming together of reason and emotion within this stratification develops on an intuitive level, Holl (2016) states that:

[9] It is an essential distinction within the scope of the thesis. The literature review, which proceeds through the user's perception of the general framework, undoubtedly plays a critical role in explaining the intuition in the architectural design process. However, the user's cognitive processes when perceiving the space and the cognitive process of the architect when designing a building are different concepts.

Intertwining of the intellect and feeling is inherent in thought intuitively developed, thought that seeks clarity, rather than possesses truth, thought that searches and is open to the changing field of culture and nature that it expresses. (Holl: 50)

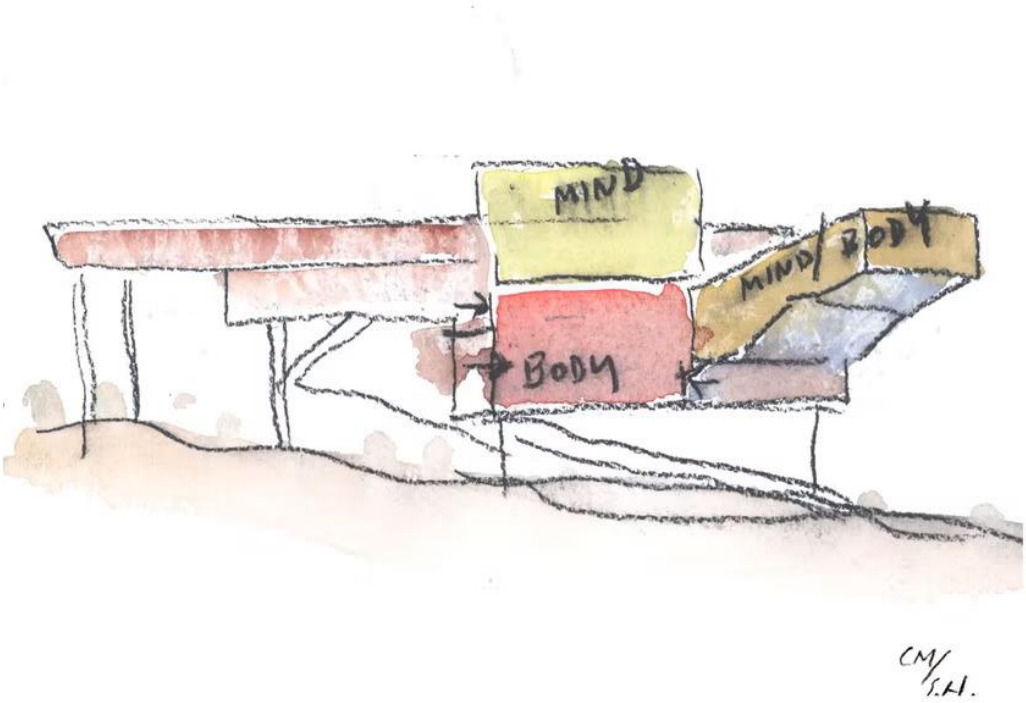

Figure 2.4. One of the watercolor diagrams of Holl.
(Source: Keskeys, 2022)

For Holl, intuition is like a muse (Holl 2016: 48). The environment that brings together intuitive and intellectual knowledge is the discipline of architecture. However, he is aware of the subjectivity of intuition and intuitive knowledge. An intuitively developed architectural practice is closely related to the designer's personal life. Therefore, it can be said that Holl is in the act of doing his architecture with an approach that he produces through his internal dynamics. In architecture, thoughts are produced in the light of subjective qualities, past experiences, and connotations that activate the meaning of lived experiences. These elements have close relations with intuition. In this context, Holl (2016) continues his words as follows:

Although intuition cannot be explicitly expressed, we cannot condemn intuitive work to ambiguity. Architecture perhaps more than any other form of

> communication, possesses the power of uniting intellectual and intuitive expression. Fusing the objective with the subjective, architecture can stitch our Daily lives together by a single thread of intensity. It can possess both the core depth and the radiant surface by which the concretize the spirit. We must look beyond the ka[10] of a beautiful surface to contemplate the jitsu of the core substance. (Holl: 50)

Both Zumthor's ideas, Pallasma's arguments, and Holl's statements highlight the significance of the concept of intuition that comes to the fore at one point in the architectural design process. However, it is seen that the implications of the concept differ for the three architects mentioned. For example, for Zumthor, the source of intuitive decisions that come to the fore in such a complex organic form instead of the analytical and sharply drawn framework of the design process is sometimes architectural expertise and sometimes the sequences of events that take place in the ordinary course of life. The situation is slightly different for Pallasmaa. The leading five senses and other secondary senses, which can work integrated, are the primary source of the facts that accumulate in people's memories. Therefore, it can be said that the source of intuition for Pallasmaa is the senses, as Kant emphasized. In other words, how the perceived event or object is perceived or through which sense determines the structure of the image that will be formed in the memory. Holl, on the other hand, is interested in the objective aspect of intuition. The source of such architectural intuition is past experiences and lived moments, whether or not they are related to the field of expertise. In other words, personal experiences accumulated sometimes through multiple senses, sometimes through the atmosphere of spaces, and sometimes through past experiences serve as a gateway to that architect's intuitive orientation in any design process.

Nevertheless, it can be said that these architects meet on a common ground. In this traditional design, the designer's role is to explore a solution space. Solutions can be aesthetic, cultural, dynamic, industrial, institutional, political, or any combination of these and other imperatives. This situation leads to a direct relationship between the designer and the work. In other words, there is a direct relationship between the designer's

[10] See; "Dünya İnançları Sözlüğü". Hanerçlioğlu (2000) states “Ka: (Egypt) The human soul… In ancient Egyptian beliefs, the human body was referred to as Khat and the human soul as Ka. However, Ka is a different power from the soul realized in later beliefs. It is the productive side of man, his second being […]” (p.231).

intentions and the designed work's intentions. The situation is slightly different in computer-based design. The computer's power as a generative design tool derives from its ability to perform tasks based on numerically embodied dimensional or relational constraints. In this context, computer-based design involves creating and modifying interacting rules or systems to create a result design.

For this reason, the one who design does not manipulate the produced work directly but instead automates the orders and systems involved in producing the work (McCormack, Dorin, and Innocent 2004). In other words, while computer-aided generative design processes allow automation at different levels, they reduce the designer's intervention to specific dimensions in the system's formation. At this point, the structure and content of design decisions that are holistic and content-based in computer-based designs, which require understanding and intuition, come to the fore.

With the rapidly developing technology, the computer-aided design process provides a spatial design process based on topology, time, and architectural parameters (Buchanan and Lambert 2005: 49). One of the architects who followed parametric architecture in the designs he carried out with the support of computer technologies was Gray Lynn (born in 1964). Lynn offers a new design approach by questioning the relationship of architectural design with the concepts of time, movement, and transformation[11].

In his work titled "Animate Form[12]" (1999), in which Lynn presents his architectural design approach, he mentions that theories about organic form, organic processes, evolution, mutation, and living things can be adapted to architectural design (Figure 2.5) (Lynn 1999). In this way, Lynn aims to control the formation process of architectural form by establishing relations between an organic form and the formation process of an architectural form. In addition, he has brought dynamic architecture to the agenda by investigating how the understanding of motion can be produced in the computer environment through some scientific models in the architectural design process (Lynn 1998: 13).

[11] It is seen that Lynn includes various natural metaphors such as flowers, leaves, or trees in his descriptions of his designs. The biggest reason for this is that the concept of dynamism is the basis of his design approach.

[12] Animate design; At the moment of proper understanding, it is defined by the coexistence of forces and movements. Force is a first condition, the cause of both the particular twists/folds of a form and the movement (Lynn 1999: 11)

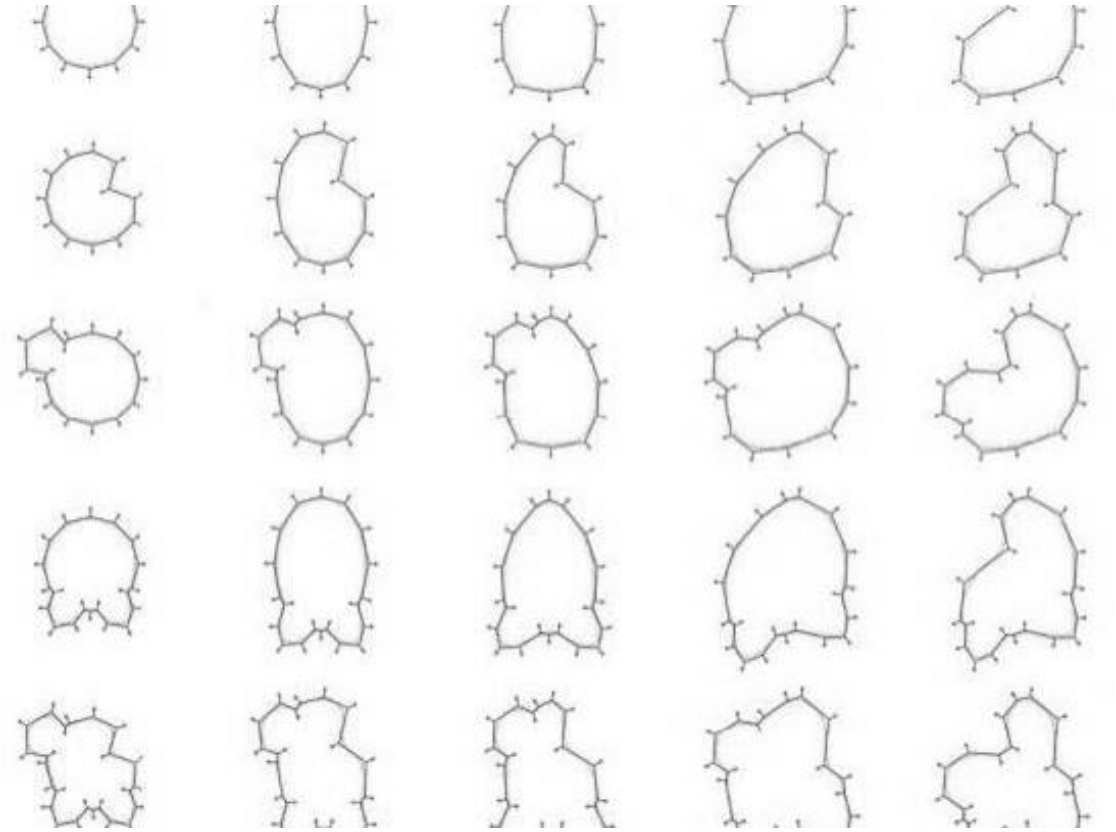

Figure 2.5. Embryological House. Designs of the primitive spline curves for plan and section.

(Source: Rappolt and Lynn, 2008)

The parametric design stands out as a computer-based design form that allows different ideas to be produced in a short time during the design process and production phase. The concept itself has some advantages and disadvantages. One of the issues criticized is that the design that emerged from parametric design began to be a product in a formal sense. On the other hand, the concept helps explore design alternatives. It provides flexibility to evaluate constantly, review, and update by adding or replacing different components during the design process (Alafandy and Al-Kazzaz 2018: 179).

By giving the diagram the function of recording the transformations of the form under the influence of external forces, Lynn, who makes it active in producing new forms, rejects static and fixed forms transcended by temporal and spatial tendencies. That is why he turned to topological geometry, not cartesian geometry. At that point, for Lynn, architecture is more of a cultural product than a smoothly processed algorithmic result.

According to Lynn, although intuition requires rigour and knowledge, it stands out as a moment when the principles and techniques of a discipline are integrated. Success in

this context lies in the comprehensive discovery and integration of all these accidentally discovered principles. One can predict, develop and expand them as an invention or innovation. Nevertheless, only rigorous use of interactive software can allow it to reach a point where results can be logically predicted without prescription. Therefore, the discovery of interactive software changes design modes and the concepts of form and space (Rocker 2006).

According to Alan Colquhoun, there is a close relationship between teleological theory or purely functionalism and expressionism. However, due to the insistence on using analytical and inductive design methods, functionalism leaves a gap in the form-making process. This gap is filled with intuition, which has no historical dimension and reaches forms spontaneously (Colquhoun 1969: 74). In this respect, intuition comes to the forefront as a gap formed by excluding cultural tools from the design processes (Colquhoun 1969: 73).

Architect Peter Eisenman asks how it is decided to select and freeze a particular object in technological processes (Lynn and Eisenman 2013: 63). [13] This question essentially questions the role of the concept of intuition in computer-based design. In this context, the cultural gap that Colquhoun mentions and the how problem presented by Eisenman are criticisms directed at the same problematic point of view. The designer, the only actor in classical design approaches, is supported by side actors in computer-aided designs. On the other hand, this consortium formation can become a thorny problem that acts as a barrier to the emergence of intuitive decisions in the architectural design process.

Architecture can be seen as a discipline with two different aspects. These are the rational or analytical side with certainty, rules, and certain ratios, and the other is the non-rational or sensual side where all kinds of human spiritual concepts that make sense of existence are valid. These two aspects are also crucial in the context of the architectural design process. The linear direction of the process is broken by the interactions of these two approaches. These breaking moments are answers to an architectural design problem. In other words, these answers are sometimes rational, sometimes sensual.

In this section, the research of Donald Schön, Richard Coyne, Ömer Akın, and Herbert Simon, who researched the structure and layers of design, were included. These studies are sometimes on the rational aspects of design, and sometimes on the validity of sensual tools within the context of design problems. The prominent concept here is the

[13] Peter Eisenman's question to Lynn: “What makes it [designed product] better? Who decides what is better?” (Lynn and Eisenman 2013).

definability of the problem. Two different forms of design problems, described as ill-defined or well-defined, can determine the intensity of an architectural design process from either perspective. While rationality may be valid in an ill-defined problem, some heuristic tools are needed. This situation makes an essential contribution to the role of intuition in the architectural design process.

Intuition has a remarkable place in the design approaches of Kahn, Zumthor, Pallasmaa, Holl, and Lynn. For Kahn, immeasurable concepts such as silence are closely related to intuition. This approach shows similarities with the metaphysical aspect of intuition, which is generally emphasized in philosophy. It can be thought that this mystical and incomprehensible feature that he attributes to intuition contributes to the organic structure of his design process. Secondly, Zumthor mentions that all kinds of recollection in memory are used repeatedly with the help of connotations. How existing information is divided into layers and used again and again with the help of associations is similar to the way the decision-making mechanisms work in System-2. This action of the mind is a spontaneous process rather than an effortful rational mechanism: like intuition. However, Pallasmaa continues on the data obtained with the senses, similar to Kant's statements. These data are important inputs in the perception process of an architectural structure for the user and in the process of creating an architectural design for the architect. For Holl, on the other hand, intuition is the muse. Intuition, which stands out as a concept that cannot be easily defined, brings with it a phenomenological vision. Finally, for Lynn, who is interested in computer-based design, intuition can be seen as the result of an effort. This situation can be compared to Spiegelberg's phenomenological concept of intuition. As a result of the effort and patience of the phenomenologist, the act of intuition is performed.

These studies can also answer the question of what might be the origin of intuition. While for Kahn the origin of intuition can be described as existence, for Zumthor it can be called experiences. Moreover, the senses can be shown as the origin that Pallasmaa attributes to intuition through his multi-sensory approach. For Holl, on the other hand, intuition is, in its own words, the muse. This situation can be associated with experiences. For Lynn, the situation is a little different. For him, the origin of intuition can be described as effort.

CHAPTER 3

INTUITION

The architectural design process has a dynamic that contains different tensions within itself. As Simon emphasizes, the act of design, which turns into a problem-solving action, highlights the rational contexts together. However, besides such contexts, the connotations expressed by Coyne, the synthesis stage emphasized by Akın, and the level of professional knowledge expressed by Schön are among the essential inputs.

It is seen that such incorporeal approaches, which are examined specifically for architects, are among the tools of the design process. What is important at this point is the conceptual expansions and structural connections of such a design tool. In other words, the fact that intuition is such an essential input in architectural design requires a critical understanding of the concept especially in relation to the creative process. However, the concept of intuition, though widely discussed, has multiple and often contradictory meanings. The notion of intuition is examined in philosophy, art, and mathematics, closely related to architecture. This context is essential to laying the groundwork for the concept of intuition to be discussed in the architectural design process.

In this section, intuition in philosophy is examined over a periodic timeline, under the headings of ancient, medieval and modern age. At the same time, in the concept of phenomenology, which stands out as one of the influential movements in the modern age, intuition has been analyzed through the ideas of different thinkers. In this way, it is aimed to draw attention to the semantic difference of the concept.

3.1. The Term of Intuition in Philosophy

In the period starting from mysticism to the teachings of contemporary philosophy, intuition preserved its definition of an inexplicable, innate phenomenon. This obscurity added a mysterious atmosphere to the concept and played a decisive role in its consideration, especially in the context of theological positions such as Neoplatonism, Sufism, and mysticism in ascribing intuition an authoritative role in knowledge acquisition through divine intervention (Janos 2016).

According to Güngör (1996), "mysticism means that a person reaches supremacy that he/she cannot reach through the mind directly, through intuition" (p.16), and comes into contact with it without any other intermediary agent. This term means "hidden" in Greek and Latin and is generally explained as the spiritual union with God(s)'s divinity by removing all the intermediaries. On the other hand, the soul reaches the final truth (Hollywood 2012: 5). Thus, this current of ideas ignores limitations and barriers and presupposes that every human being is somehow intuitively connected to everything (Deikman 1982: 55).

Another view closely related to mysticism is Gnosticism. The concept is related simply to the doctrine of salvation through knowledge, whose origins date back to Plato, and it is a movement that the source of actual knowledge is not revelation and reason but discovery and inspiration[14]. According to Gnostics, liberation can only happen through intuitive knowledge. Contrary to its conceptual contrast with Mysticism, their common denominator is the importance they attach to the concept of intuition. However, while intuition is seen as a form of knowing in Mysticism, Gnosticism sees the concept as a tool for acquiring knowledge.

In the Gnostics, the soul trapped inside the body can be saved due to breaking the laws of nature. When people go beyond the laws of nature, they are left alone with themselves. Furthermore, when people are alone with themselves, a kind of knowledge emerges as an inner intuition. With this knowledge, they reach their true self. According to the Gnostics, there are three types of knowledge on the path to spiritual enlightenment:

1. the knowledge that can be learned through teaching is called *mathesis*,
2. the knowledge that can be acquired through feeling or suffering is called *pathesis*, and
3. the knowledge that can be learned through intuition is called *gnosis*. (Hançerlioğlu 2000).

The Gnostics argue that gnosis is neither a philosophical knowledge nor a knowledge contained in religious books such as the *Old Testament*, but a supra-cosmic revelation that they have especially received in the form of a "vocation", or "intuition".

[14] See; Hançerlioğlu, Orhan. 2000. Dünya İnançları Sözlüğü. 3rd ed. Istanbul: Remzi Kitabevi p. 171. "Gnostics: […] Although Gnosticism is mixed with mysticism, it is based on rationalism […]" (Hançerlioğlu 2000: 171)

3.1.1. Intuition in the Ancient Philosophy Period

Intuition, which emerged as a mystical understanding, continued to be shaped by different expansions in the history of philosophy. The period beginning in the 6th century BC and extending to 529 AD, when the famous Roman Emperor Justinian closed the School of Athens, is known as ancient philosophy. It is divided into Hellenic philosophy and Hellenistic philosophy. While Hellenic philosophy began as an independent thought activity based only on the human mind, as a result of breaking away from religious or mythological thought, Hellenistic philosophy emerged in the last part of the period, approached to religious doctrines, and gained a mystical character. Hellenic philosophy is divided into three itself; Pre-Socratic (Philosophy of Nature), Socratic (Philosophy of Human), and Systematic Period (Cevizci 2012: 9).

Ionian philosophers Thales, Anaximander, and Anaximenes, who formed the first school or thought tradition in the history of pre-Socratic natural philosophy, debated primarily on nature. According to them, when the *arche*[15] can be determined, it will be possible to determine what exists. The second school of the period was the Pythagorean School, which was distinguished by its theological, scientific, and philosophical views. Contrary to the Ionian philosophers, the Pythagoreans emphasized mathematics over physics. However, the concept of intuition comes to the fore in Ancient Greek philosophy with Heraclitus and his concept of logos.

With his *logos*-centered philosophy, Heraclitus was the first to propose a coherent system of the meaning of human life. In the context of epistemology, he makes a distinction between *aisthesis* or sensory perception and rational intuition -or rational understanding (Arslan 2009: 207). According to him, sensory illusions only lead to appearances and multiplicity when there is no mind guidance. This opinion leads to the following: actual knowledge can only be accessed through mind (Cevizci 2012: 16). Consequently, intuition stands out as a concept related to the mind in the philosophy of Heraclitus.

Logos is defined in different terms because Heraclitus' remark advocates a continuous flow. According to Cornford, *logos* is a part of the thought that governs all

[15] See; Hançerlioğlu, Orhan. 1976. Felsefe Ansiklopedisi. Vol. 1. Istanbul: Remzi Kitabevi. p.98. “Arche: The Beginning... Ancient Greek thought began by perceiving the constant change in the world, searching for the unchangeable, and from this, the beginning, the first, the root of everything. Thales first answered this question. However, it was Aristotle who termed the Greek word arche, and he used the term in the sense of principle.” (Hançerlioğlu 1976a: 98)

human intelligence, and it is referred to as fire; a moving, ever-living, and conscious thing (Cornford 1965: 113-114). Slonimsky describes it as a divine law (Slonimsky 1912). Walther Kranz directly describes *logos* as God(s) (Kranz 1994: 57-58).

For Heraclitus, *logos* is an objective state of things, common to everything and every person (Guthrie 1992: 416-419). According to Heraclitus, humans need an intuitive and insightful awareness to contact with this reality, which is inherent in beings. Anyone with the insight to grasp the logos can capture it in outer Nature because the reality of *logos* is fully contained within oneself (Guthrie 1992: 431). Heraclitus expresses this as "I discovered myself" (Guthrie 1992: 414).

The rationalism of Heraclitus was carried to a much higher level by the Philosophers of the Elea School. Parmenides, the founder of the Elea School, has a privileged place in ancient thought. The question of the nature arose for the first time in the context of the logical separations that Parmenides envisaged between being (to on/to eon) and non-being (mé-on) (Peters 1967: 141). In other words, Parmenides thinks that turning to existence through senses and observation will not show us existence as it is in itself. At this point, Parmenides, unlike his predecessors, is the first philosopher to argue that existence can only be grasped with thought and reason. However, the philosophers of Miletus, who accepted both existence and variation, prioritized senses and sensory perceptions while asserting this reality.

According to Parmenides, who says that the world of senses is deceptive, the filter that will distinguish between right and wrong or truth and falsity is logos. However, according to him, things seen through sense and observation and reality differ. Although this distinction between the appearance and the reality is known to have been put forward by Plato, it was first put forward by Parmenides (Russell 1967: 119).

Parmenides, in his work called *Peri Physeos* (On Nature), says that he went from the "land of darkness" to the "land of light". He calls the following two sections "Way of Truth" and "Way of Opinion". This naming is the first manifestation of Parmenides' emphasis on distinguishing between appearance and reality.

Moreover, Parmenides thought that while the filter to distinguish right from wrong is logos, the tool is intuition. Therefore, intuition is a critical element in his philosophy. In this context, according to The Cambridge Dictionary of Philosophy, Parmenides declared for the first time the principle of *Nihil ex nihilo fit* (Nothing comes from nothing), which is one of the basic foundations of western metaphysics based on intuition (Audi 1995). This principle shows the importance he gives to intuitive thinking and intuition.

However, for him, besides intuition, another crucial concept is rationalism. Mental faculties are the signs that will lead to the light path and the only factors that will decide whether the judgment is right or wrong. This situation shows that Parmenides emphasizes both intuitive and discursive thinking.

The views of Socrates on intuition are at a crucial point in terms of examining the concept in ancient philosophy. He has consistently criticized the natural philosophers' theoretical curiosity about knowing, which is based only on understanding existence.[16] According to him, an innate absolute truth is universal and applicable to all people. All that must be done is to apply the necessary method to reveal this truth.[17]

The Socratic method is a style of discussion that encourages questioning, in which the Athenian philosopher Socrates asks questions to people in front of him rather than teaching them directly (Nelson 1949). According to the German mathematician Leonard Nelson (1949), this method is an art of philosophizing rather than philosophy, moreover, this questioning opens a road to rational self-determination (p.19).

The first stage of the method is irony, that is, ridicule. This process can be summarized as a thesis-antithesis-synthesis process. Socrates tries to show that he is ignorant in addition to the other person's ignorance. Then at the second stage, which is the childbirth stage (maieutic), information previously believed to be innate is brought to light with step-by-step questions (Çüçen 2005: 94). After the childbirth stage, his desire has been fulfilled. The person, who came to him with various assumptions under the name of knowledge, could grasp the actual knowledge that already exists in him/her but has not yet been fully realized in mind. At that point, the incredible power that Heraclitus attributed to intuition left its place to the mind in the philosophy of Socrates.

The main striking point in the content of the Socratic method, which has turned into an art of comprehension, is the *Daimonion*. Parmenides used this term to mean divine, Protagoras used it as "demons", and for Socrates, it meant "a traditional intuition". That *Daimonion* is the source of Socrates's thoughts, the ruler of intuitions, and the source of melodies (Plato 1956). It symbolizes incomprehensible deities with superhuman qualities

[16] In the middle of the 5th century BC, philosophical views underwent a remarkable transformation. The changing way of thinking has prepared the ground for the transition from natural philosophy to philosophy on humans. After disinterested philosophical speculation on existence, the concept of humans is put at the center of philosophy (Cevizci 2012: 22).

[17] In his conversations with the prominent figures of Athens, Socrates realizes with horror that no one can display awareness and consciousness of their work. According to him, this lack of consciousness in humans is an existential error that must be corrected and eliminated (Megill 1985). What is important here is the contrast between awareness and intuition.

and somewhere between divine and humans. In other words, *Daimon* is the name of a divine connection, an inner power that leads to a higher life (Peters 1967: 211).

This unique, powerful, and guiding voice that Socrates heard inside warns him of wrong in questioning/discussion (Nietzsche 2020). However, this customary intuition certainly does not tell Socrates what to do when the *Daimonion* warns him what not to do. Nietzsche argues that Socrates's instinct and consciousness are functionally interchanged, creating a kind of "monsterism". Whereas in all productive people, instinct functions as a creative and positive force and consciousness as a critical and inhibiting stimulus, in the case of Socrates, instinct is critical, and consciousness is creative (Nietzsche 1995: 47).

The third and last period of Hellenic philosophy is the systematic period[18] of the philosophies of two great philosophers, Plato and Aristotle (Cevizci 2012: 31). According to Plato's theory of knowledge, one of Socrates' students, there are four different styles of cognition, each of which corresponds to four different levels of being. Plato calls the highest part of these modes of cognition "knowledge" (*noesis*), the second one is "thought" (*dianoia*), and others are "confidence" (*pistis*), and "conjecture" (*eikasia*) (Plato 1926).

Noesis, which Plato places in the highest division corresponding to the science of ideas, is the intuitive mind directed towards the ideas. In this context, while the association of intuition with reason continues, emphasizing the metaphysical dimension becomes crucial. According to Plato, the reality obtained by sense and observation are defective copies of ideas; on the other hand, true knowledge[19] can be reached with pure reason and intuition (Ackermann 1965: 18).

Considering that it is not enough to solve the question of "what is the source of knowledge" with the theory of remembering, Plato reveals intuition, which is a faculty of the soul. According to him, man does not think about ideas through experience but senses with his soul. However, intuition, a function of the mind, requires either the previous data of the experience or the mind to have been busy with this subject to see its subject's judgments and truths. In this context, Plato's way of considering intuition as a concept

[18] The philosophers of the period began to question the reliability and adequacy of the powers and abilities people used to reach knowledge. While doing this, they were interested in what is happening in the outer world and the issues related to the human's inner world.

[19] According to Plato, the "true" consists of many things, not just one thing. The information, which is at the lowest level in the realm of ideas, is the inferences that can be reached due to various reasonings based on visible objects. Therefore, these are not desirable information.

related to effort strengthens the connection between intuition and reason. He thought intuition gives direct information about its object after a specific mental effort (Titus 1986).

The heir of Plato's understanding of rational intuition is Aristotle, and he states that emotions contain both physical and cognitive elements. However, this does not mean his works have no traces of mystical, supernatural intuition. For him, intuition, in its simplest form, is the ability to grasp basic premises and concepts. Moreover, science is the ability to deduce valid conclusions from fundamental premises grasped by intuition. In Aristotle's philosophy, the reason is an effective tool in applying the knowledge obtained from the combination of intuition and deductive reasoning to many fields (Aristotle 1967).

Aristotle lists the constituent parts of the mind under five main headings: "Art (*techne*), scientific knowledge (*episteme*), practical wisdom (*phronēsis*), philosophical wisdom (*sophia*), and the ability to discern reality or intuitive reason (*nous*)" (Löfgren 2019: 1). He indicates the various functions of each of these concepts in his different works. Practical wisdom (*phronēsis*) and intuitive reason (*nous*) are essential in reaching true knowledge because they directly determine human qualities. For this reason, it is remarkable that Aristotle emphasizes intuitive reason in terms of both forming the basis of intelligence and having divine features.

Pre-Aristotelian philosophers have put forward different views on the first principle of what exists in nature (*arche*) or the first source from which everything comes out. The first ontological question these philosophers seek answers to is: Is there a first source/principle from which this universe and everything in it come about, and if so, what is it? They always take something that has material properties as the first principle. According to Aristotle, this is a mistake.

According to the first philosophers, this first source is generally material. While Thales says that the first principle is water, Anaximenes says air, Heraclitus says fire, and Empedocles says air, water, earth, and fire. According to Aristotle, these philosophers, including Heraclitus, who claimed that everything is in constant flux, identified "existing" with sensory things (Aristotle 1956: 135). However, Plato, Parmenides, and Pythagoreans, unlike the others, argue that the first principle is not something sensuous. At that point, Aristotle formed his first philosophy based on the views of these three philosophers. The central concept in this first philosophy is *nous*. With its archaic pronunciation, the word *nous* is ubiquitous in early Greek poetry (Sullivan 1999: 61).

In its connection with the virtues of thought, Aristotle introduces the term nous as an intuition about definitions without reason, peculiar to the first and latter definitions[20]. Intuitive reason or nous refers to the ability to grasp the universal truth after perceiving a certain number of situations and then seeing this truth or principle is self-evident (Copleston 1962: 84). In this sense, nous can be similar with intellectual intuition, not just reasoning (Price 2015: 224). Apart from the thought that concludes by making indirect inferences here, nous is the ability that grasps the first principles of science, ideas, or forms, that is, substances intelligible to the mind. In other words, it is an intelligent part of the soul determined by an intellectual and intuitive understanding.

Plotinus, philosopher who followed Platonism and the founder of Neo-Platonism, set out his views on Plato's Idea of the Good in his dialogue called The Republic. In this way, he deified Plato's Good Idea.[21] Like Plato, he thinks the material world cannot be accurate because it constantly changes. Plato, who made an analogy between Good Idea and Sun, claimed that the Good Idea was beyond existence and knowledge. Accordingly, the Idea of the Good, which transcends existence, cannot be known by the discursive knowledge peculiar to mathematics or dialectics. The Idea of Good, which is beyond knowledge, can be grasped with a kind of intuition, in other words, according to Cevizci (2012) "a spark that will fall into the soul after many years of dealing with mathematics and dialectics" (Cevizci: 72).

In Plotinus' philosophy at the highest level, there is *nous*, or mind, as in Aristotle's philosophy. *Nous* comes to the fore as an intuitive reason, the first step of the process where the unity in divine gradually gives way to the multitude (Plotinus and Armstrong 1966). A less perfect being than *nous*, the spirit, has the power of thought. Thought of the soul is not pure and intuitive like *nous*, but it is discursive (Cevizci 2012: 74). Besides this rationalism, the soul is an irrational principle that can only be grasped intuitively in Plotinus' philosophical view. This is an essential development in terms of adding a new dimension to the definition of intuition, which was fixed throughout the history of ancient philosophy.

[20] In this context, according to Aristotle, to know something is to know the cause of it. Therefore, it is necessary to know the first principles that form the basis of knowledge. Reaching such knowledge is possible only with an intuitive and infallible ability, nous.

[21] The philosophy of Plotinus is a doctrine of salvation. According to him, philosophy should be about knowledge that does not allow the soul to reach its essence and unite with the main principle of existence. In this context, he argued that the way to reach divine is through intuitive vision.

In ancient philosophy, intuition and reasoning fuse and complement each other in many ways. The term, which stands out as a mystical concept in the process starting from Heraclitus and continuing until Plotinus, serves as a tool for obtaining true knowledge rather than a feeling. This epistemological questioning has led to the association of the concept with different terms such as *logos* and *nous*. This reconciliation can be based on the close relationship of the concept with reason. Intuition prepares the basis of reason; it precedes it. The invention is made by intuition but proved by reasoning. On the other hand, intuition is the starting point for reasoning, both in induction and deduction, even in mathematics. In the context of intuitive or discursive thinking, though has always been associated with both intuition and reasoning.

3.1.2. Intuition in the Medieval Philosophy Period

The period of about a thousand years between ancient and modern philosophy is called medieval philosophy. It ended in the 14th century, with the emergence of a new worldview and understanding of philosophy, which is described as modern, in the Renaissance era of European Civilization (Cevizci 2012: 76).

The concept of mystical intuition, the foundations of which were laid in ancient philosophy, found a place for itself in religious debates in the Middle Ages. Due to the interaction between philosophy and religion, Neo-Platonist and Stoic philosophers overshadowed the church fathers regarding their intellectual abilities (Russell 1967: 301). It is seen that the close relationship between the concept of intuition and the mind continues in this period as well.

Medieval philosophy, which historically covers about a thousand years, consists of four different thought traditions. The first of these is Christian philosophy. Developed in Europe and expressed in Latin, Christian philosophy covers the entire period characterized as medieval philosophy. The second great tradition of medieval philosophy is Islamic philosophy, which originated in the Islamic world in the East and was expressed in Arabic and Persian languages. Two other traditions of the period are Jewish philosophy and Byzantine philosophy, which were expressed in Greek within the Christian Byzantine Empire (Cevizci 2012: 76).

Christian Medieval philosophy is divided into Patristic Philosophy (2nd century AD - 8th century AD) and Scholastic Philosophy (8th century AD - 15th century AD). The first influential philosopher of the maturity or Golden Age of patristic philosophy was

Titus Flavius Klemens or Clement of Alexandria (Cevizci 2012: 85). Klemens of Alexandria is considered as one of the first Christian mystic leaders to establish mystical theology (King 2001: 28). According to Klemens, sacred texts are full of mysteries that can only be understood through allegorical interpretation; these texts have three meanings: literal, moral, and spiritual (Gilbert 1911: 154).

At that time, one of Christianity's problems was dealing with gnostic ideas. Christianity has struggled with Gnosticism, which accepts the evil of matter, embraces dualistic reality, and claims that salvation is only possible through attaining gnosis (intuitive knowledge) (Gündüz 1998). In this chaos, Klemens, on the one hand, recommended the necessity of faith for spiritual life to the gnostics; on the other hand, he tried to warm the Christians, who were believers but far from deep philosophical understanding, that there was a close relationship between faith and gnosis (King 2001: 30). In this context, he revealed the first example of the *Credo ut intelligam*[22] attitude, which comes to the fore in St. Augustine and St. Anselm.

The most influential philosopher of patristic philosophy was St. Augustine, the most considerable authority of the Western Middle Ages until the late 13th century when Thomas of Aquina began to leave his mark on Christian philosophy. Augustine divides knowledge into sensory knowledge, rationale knowledge, and intuition (Cevizci 2012: 87). The entities that are the subject of sensory knowledge are temporal; they come into existence over time and disappear after a certain period. With the second level of knowledge, one rises to the level of rational knowledge. In this knowledge, which is at the middle point between sensory and intuitive knowledge, the human mind judges and evaluates the corporeal entities it deals with at the first level of knowledge according to the incorporeal, eternal essence or standards. The essences mentioned here are Plato's Ideas. Intuitive knowledge, the highest type of knowledge, is the direct knowledge of these immutable realities. A person with true wisdom at this level reaches certainty that he/she can never reach (Cevizci 2012: 88).

According to Augustine, time consists of three parts; past, present, and future, and it moves in one direction. Although their parts are easily detectable, they are equally challenging to examine independently. However, to make divine's actions knowable to

[22] The idea behind the emergence of this attitude is as follows; According to Klemens, faith is superior to knowledge. Nevertheless, there is no contradiction between faith and knowledge. Because dogma is, in essence, reasonable. According to him, reason also confirms that what divine commands is good. Therefore, intuition must also be reasonable.

human mind, time must be accepted as intelligible. The past corresponds to memory, the future corresponds to anticipation, and the present corresponds to intuition (Teske 2001: 151). Each of these is, in a sense, a function of memory. At this point, a complete picture of events spanning time and space can be captured thanks to memory (Burt 1996).

The correspondence of "now" to intuition in the temporal plane opens a new door to the subject of perception. When Augustine recalls a beautiful stone arch he had once seen in Carthage, he says there is more to it than the image of this arch in his mind. This work of art gives him pleasure thanks to other things he observes or experiences. Thus, according to him, private things such as a belt or a work of art are judged according to the form of absolute truth. Moreover, the intuition of the intelligent mind can discern this form of absolute truth (Augustinus and Matthews 2002).

Another medieval thinker who noted the importance of intuitive knowledge was William of Ockham. William of Ockham, who followed Aristotle, claimed that, unlike Plato, there is no specific innate knowledge in the minds of human beings. According to him, there is no intermediary between the outside world and the person who perceives it, and the important thing is the subject's experiences.

However, Ockham has changed his view throughout his career regarding the ontological status of such conceptual entities. He sees universals representing objects as *fictas* (fiction). In order to express this, he put forward a creative analogy. A builder first sees a house and looks after it. Then that house takes place in his mind. This house, which took place in the mind of the master, is so crucial for this master because it is the first; he builds the houses he will build later according to this first example (Gracia and Noone 2002: 704).

The situation here is how the universals in mind are formed in connection with experience. If the house he saw for the first time had been entirely different, it would have been completely different universals belonging to the first house. In defining the following house concepts, the mind will automatically continue this process based on similarity. Therefore, the definition and description of the objects are realized by fitting them to the first model (Gracia and Noone 2002: 705). On the other hand, this problem calls into question the reliability of reality.[23]

[23] If a proposition is desired to assure its truth and the truth of what it expresses, direct evidence is required, not just abstract and intuitive proof. In this context, Ockham often repeats that intuitive knowledge is the only knowledge that allows us to reach facts about existences.

The interpretation of making definitions by using the similarities of the mind with the accumulation of intuitive knowledge will cause mental confusion. In order to avoid this confusion, Ockham introduces a problem-solving principle, also known as Ockham's Razor, "*Entia non sunt multiplicanda praeter necessitate"*[24] (Ariew 1976), which means "no more things should be presumed to exist than are absolutely necessary" (Dent 2013).

Another important and original philosophical tradition of medieval philosophy is Islamic philosophy. Islamic philosophy has had many sources, especially the Qur'an, Hadith, and Greek philosophy (Cevizci 2012: 102). One of them is the notion of intuition as expressed in *hads.*

There are many types of intuition in Islam: mental intuition, experiential intuition, mystical intuition, and philosophical intuition (Hökelekli 1997). In addition, the existence of aesthetic and psychological intuition is also mentioned (Öktem 2000: 156). Intellectual intuition arises from the mind, while experiential intuition is related to the senses. The partnership between these two types of intuition is essential. Because the source of knowledge in mental and experiential intuition is the person himself, there is no outside interference to the person.

Ibn Sînâ was a great Islamic philosopher known as Avicenna in the medieval Christian world (Cevizci 2012: 114). In his works, he describes the concept of intuition with different expressions, especially in the disciplines of logic and psychology. For example, in *el-İşârât ve't-Tenbihât*, he points to the place of intuition in the reasoning process. In this work, intuition refers to the fact that the mind does the act of reasoning spontaneously in the best way and that the thinking process takes place in the fastest and safest way. However, intuition means the instantaneous acquisition of a middle term[25] (Hasse 2000: 155).

Intuition is one of the critical concepts in Sînâ's epistemology regarding the relationship between humans, knowledge, and the source of knowledge. All knowledge thought by minds is said to be *intelligible*[26]. *Intelligibles* are complete, eternal, and

[24] Occam's Razor is based on fundamental logic: the simple is the right if all the other factors are the same for detecting or solving the problem (Domingos, 1999). All unnecessary factors must be eliminated, cut out, and discarded.

[25] The middle term enables a connection between the major and minor terms, thus concluding that the provision in the major term also applies to the minor term. The human mind reaches the knowledge of the unknown from the known.

[26] Intelligible is divided into primary and secondary. In Sinâ terminology, "primary intelligible" express the principles of formal logic that the mind possesses without effort (Hasse 2000: 129)

unchangeable knowledge (Gutas 2005: 60); they see humans as the source of knowledge and point to where they should turn.

In order to understand the rational character of intuitive knowledge, the principle of "the order of existence is comparative" must be known. According to Ibn Sînâ, the relationship between intelligibles has a syllogistic feature. Since intelligibles are an expression of existence, the structure creates a syllogistic order (Hasse 2000: 181). Therefore, it is necessary to follow this order to reach the knowledge of existence. According to this principle, for one to reach the intelligibles, following the syllogisms that confirm each proposition expressing the intelligibles is necessary. That situation requires finding the middle term related to the major and minor premises. The name of this discovery in Sînâ's theory of knowledge is intuition (*hads*) (Hasse 2000: 154-155; Gutas 2005: 61). Thus, Sînâ bases the place of intuition in the theory of knowledge on a philosophical basis, not on a mystical and ambiguous one.[27]

al-Ghazālī is the direct or indirect abolitionist of the process of rationalization of religion through philosophy, which was initiated by Kindi in the East of Islam and continued by Fârâbî and Sînâ. In other words, Ghazali, who made a definite choice between reason and faith, believing that rationalizing faith is nothing but distorting its essence. So, he led to the birth of Sufism (Cevizci 2012: 123).

Ghazali was considered one of the representatives of intuitionism in Islamic philosophy and settled accounts to terms with reason and sense knowledge regarding reaching true knowledge; he believed that true knowledge could only be reached with intuition. Before him, peripatetic philosophers also talked about intuitive knowledge. Nevertheless, according to them, a person could reach this intuitive knowledge due to his effort by working. For example, Sînâ argued that absolute truths could be reached through intelligibles, which constitute the basis of thought and knowledge of the human mind (Cevizci 2001: 159). Therefore, for Sînâ, intuitive knowledge results from one's effort. However, for Ghazali, intuitive knowledge is divine learning.

According to him, reliable information that does not even have the possibility of doubt comes only from divine. He calls it "divine light" (Muhaya 2015: 324). The reliable answer to a person's questions is hidden in this "light" that comes directly from that divine and fills one's heart. In his work *Miyar'ül-ilm*, Ghazali expresses it as heart knowledge;

[27] Sînâ defined intuition by mentioning this principle: Intuition is the speed of the mind's movement to find the middle term that will lead to this knowledge. In short, intuition is the rapid realization of the transition from the known to the unknown.

It means information that those who do not identify cannot know and those who do not reach it cannot comprehend. At that point, knowledge comes directly, and suddenly, not gradually.

The discussion on intuition makes it clear that, the concept of intuition has been studied as a concept relating to both religion and philosophy. At this point, it is seen that intuition continues to be a means of acquiring knowledge in medieval philosophy. Such a perspective can be seen as the main reason for the emphasis on the mystical aspects of the concept. However, it can be said that the concept, which was placed in an epistemological framework in antiquity, opened the door to ontological research in this period. Intuition, as well as being a tool in reaching the true knowledge, has also started to be a tool at the point of making sense of one's existence.

3.1.3. Intuition in the Modern Philosophy Period

Modern philosophy emerged with the Renaissance, which started in the 15th century and gained tremendous momentum with the Enlightenment philosophy of the 18th century (Cevizci 2012: 206). In this period, while philosophers such as Bacon and Hobbes focused on nature, rationalists[28] determined the theory of knowledge as the essential subject of philosophy. The issue and the origin of God and existence continued to maintain their importance, but human was chosen as the starting point of philosophical debates. Rationalists such as Descartes opposed the mysteries of superstition and glorified the power of reason and rational methods. According to Cevizci (2012) the aim of these philosophers, who see mathematics as a rational method or a competent knowledge model, "was to universalize mathematical reasoning and apply it without limitation to all problems of philosophy and science" (p.228).

Modern Western philosophy, which started with Descartes, highlights the supremacy of the Cartesian mind. In contrast, the Eastern world did not deny the mind and the five senses, moreover, they thought that there are some hermeneutic sources of knowledge such as intuition (Vural 2020: 28).

The French philosopher René Descartes, who is accepted as the founder of modern philosophy, considers intuition as the basis of fundamental knowledge and the primary method of acquiring knowledge. In other words, while accepting intuition as

[28] Cevizci (2012) uses the term rationalists for Descartes, Spinoza and Leibniz.

unconditioned for knowledge, he purifies and separates it from the senses. According to Descartes' understanding, only the light of the mind is sufficient to obtain intuition, and there is an element of intuition in all knowledge (Descartes 1984: 87). In other words, certain forms for the ordering of matter are obtained with intuition (Ackermann 1965: 248).

Descartes seeks certainty and bases the truth, which he calls obvious, undoubted, and necessary, on intuition. However, besides intuition, it also attaches importance to deduction (Cevizci 2012: 232).[29] Deduction and intuition are very different because, in deduction, there is a movement, a sequence that does not exist in intuition. However, intuition is a more solid understanding in the attentive mind than the deduction that occurs with the light of the mind alone (Descartes 1964: 154-155). Therefore, the concept of intuition has an important place in understanding the relations between the propositions that constitute the various steps of reasoning. However, the first principles are known only by intuition, while the final results are known only by deduction (Descartes 1964: 155). In other words, valid intuitions are short pieces of information that the senses and reflective thinking will reveal (Titus 1986: 213).

Descartes' intuition is more comprehensive than Kant's, which is limited to perception because it extends beyond the senses. By intuition, one knows that he exists and thinks that the triangle is limited to only three lines and that the sphere is surrounded by only one surface (Descartes 1964: 134). Thus, in Descartes, intuition is the insight of a pure and attentive mind, and it is such an easy and distinct understanding that it leaves no doubt about what is understood.

For Descartes, this certainty of intuitive knowledge is apparent, and he bases his knowledge of things on divine. According to the philosopher, the truth of clear things is possible only with the presence of divine, the guarantor of knowledge (Descartes 1960: 3-4). The ability to discern right from wrong, inherent in everyone, was created by God(s), a supremely truthful and not deceitful being, and is constantly guarded by him (Spinoza 1961: 52). In that context, an error is not a positive thing; It would be absurd by definition to think that divine, who is an unlimited and perfect being, will deceive.

[29] For Descartes, unless knowledge is grasped with intuition or is referred to as intuition with a deduction, it ceases to be true knowledge and therefore remains outside of science. According to Cevizci (2012) "Descartes focused on the functioning of the human mind in the field of mathematics. This examination shows him that the human mind has two elemental powers. The first of these is intellectual intuition, which enables the human mind to know the apparent truths and fundamental principles without any doubt. […] The second power of the mind is deduction, which allows deriving new truths by intuition" (p.232).

German philosopher Immanuel Kant is considered as the founder of critical philosophy and argues that knowledge can be obtained through reason and experiment. He was another philosopher who gave an essential place to intuition in the philosophy of knowledge. According to him, rationalists underestimate the contribution of experience and intuition, which are indispensable for knowledge. On the other hand, empiricists are aware of the importance of experience. At this point, Kant thinks that to understand knowledge, the concepts existing from the subject should be sensuous[30], and intuitions should be placed under these concepts (Cevizci 2012: 346). That has the following result: Concepts cannot form knowledge without intuition, and intuition without concepts (Kant 1896: 40).

In Kant's theory, all knowledge is established through intuition and categories. Categories, according to Kant, are a priori forms of the mind; knowledge takes place through them (Kant 1896: 68). According to him, all knowledge begins with experience, intuitions belonging to the senses provide knowledge material, and the mind transforms this data into categories and turns it into a thought tool. In this context, intuition and categories form the elements of all our knowledge (Kant 1896: 206-207).

Henri Bergson is one of the pioneers of the rebellion against rationalism that developed in the 20th century (Cevizci 2012: 467). Moreover, he speaks of the primacy of the concept of intuition from an epistemological point of view. He believes nothing can be known without intuition (Bergson 1911: 70). Because analytical approaches consider reality as static and determine the concept of space rather than time for this static approach, they want to examine everything by breaking it down into parts. Even time is handled in parts; it makes it impossible to approach the essence of truth. According to him, it is inevitable to use intuition to reach the essence of existence. In this context, Bergson opposes the sciences' priority on intelligence and raises intuition to a higher level as the intersection of intelligence and instinct (Bergson 1928: 186-187).

In his view of knowledge, Bergson is not fully of convinced of the validity of rational thought and he claims that "there are two different ways of knowing something" at the center of his philosophy (Cevizci 2012: 467). In the first of these, a man tries to know the object externally and statically by turning around it. The information obtained this way depends on the point of view from which the object is observed and the place where one stands, and Bergson says it will be different for each observer. In the second,

[30] "Adding objects to them in intuition" (Cevizci 2012: 346).

it is possible to penetrate the object from within while it is in motion. In this case, knowledge is absolute because the knowing subject frees himself from the limitations imposed by any perspective or point of view. Bergson calls the first "the way of analysis" and the other "the way of intuition" (Cevizci 2012: 468).

Moreover, according to him, intuition and intelligence exist in opposite directions.[31] However, intuition is not against the mind but rather complementary to it. The mind is the instrument of science that can be related to matter, and it is the ability to create artificial things, make tools utilizing tools, and change them as much as possible (Bergson 1928: 146). While he describes life, as an external term, in static and dead terms, intuition is internal (Titus 1986: 213). To think intuitively is to think in "duration"[32] (Öktem 2000: 73). Intuition is above intelligence.

Modern philosophy can be seen as a period in which ontology came to the fore. During this period, while efforts were made to reach genuine knowledge, existential problems began to be articulated to this goal. Therefore, different expressions can be seen in the sub-expansions of the concept of intuition. "Subjectivity" is the most striking of these. The intuition, which changes, develops, and differentiates from person to person, has supported the conceptualization of time and space.

3.1.3.1. Phenomenology and Intuition

In the 20th century, Husserl developed phenomenology as a priori-descriptive science, foreseeing the overlapping of the categories of reason and experience (Mengüşoğlu 1995). This science, which keeps itself from all kinds of theory, explains what "essence" is and how it can be grasped (Husserl 1931: 13-14) and is derived from the word phenomenon. It means the reality of the external world can be heard, and the German philosopher Hegel first used it in Phenomenology of the Mind (1807). Later, the concept was developed by Edmund Husserl and became a philosophical school of thought. This philosophical research method tries to understand how our consciousness constructs the reality we accept as given in daily life without questioning. According to Husserl, research on how the given and manifested reality is given and how it emerges is

[31] Intelligence for space, stationary and fixed situations and science; Intelligence for time, being and mobility, metaphysics.
[32] It is the time that has been lived. At that point, to grasp the knowledge of the duration, it is necessary to live with it, be in it, and flow with it.

possible with the research that will reveal the phenomenological attitude instead of the natural attitude (Thompson and Zahavi 2007: 68).

Husserl (1931) accepts the assertion that physical objects exist outside and beyond the human mind (p.51-52). However, he thinks that people can never be sure of their knowledge because they can make contact with objects through their limited senses. Therefore, according to him, the social world and social reality consist of people's assumptions and interpretations (Husserl 1931: 263). The process of discarding this information based on common sense and experience is identified as the "phenomenological method", "bracketing", or "epoche" by Husserl (Overgaard 2015).

The bracketing method's[33] first step is divided into two: phenomenological reduction and phenomenological reflection. Phenomenological reduction is divided into phenomenological reduction, eidetic reduction, and transcendental reduction. Systematic and radical phenomenological reduction is the first step of the phenomenological method. In general, it refers to suspending and holding assumptions, knowledge, beliefs, thoughts, or mental states that belong to the outside world; in other words, to avoid any judgment to reach the essential structure of an object. This strategy, which aims to reveal the a priori (pre-experimental) essences of thoughts and bracket individual consciousness to permit the systematic scrutiny of logical essences, is called phenomenological reduction (Jary and Jary 1991: 197-198). First, known ones should be bracketed to reach the source of information (reduction phase). Then the information should be reconstructed in consciousness without any judgment (reflection phase) (LeVasseur 2003).

For this method of "going to the essence of things", intuition is critical as the principle of principles. The issue of intuition and knowledge in Husserl differs from empiricist approaches. Intuition offers the potential of a different becoming, not the finished state of being present. Husserl's understanding of knowledge is similar to the thought of Kant, who considers knowledge as a product of intuition and concept (Kidd 2014: 131). However, it differs from the Kantian philosophy tradition regarding Husserl's approach to part and whole epistemology (Teichman and White 2016: 98). In this context, Husserl examines the concept of intuition under two main headings: Essential intuition and synthetic categorial intuition. The concept of synthetic categorial intuition

[33] Bracketing is a concept developed by Husserl. In this step, the subject should bracket any information about the object that is in his memory. These are both appearance features such as color, texture and shape, as well as previous experiences with the object. In this way, the next step can be taken to perceive the essence of that object.

corresponds to the concept of intuition inherited from Kant. The most distinctive feature of this type of intuition, the theme of which is based on logical relations, is the act of perceptual fulfillment (Kidd 2014: 141).[34]

How things are given directly to consciousness can only be understood by intuition. Intuition is, first of all, the feeling that gives the world to the subject and is the source of direct knowledge. Consciousness is grasped with intuition, and what it means for objects to be given to consciousness ends in intuition (Levinas 1998). However, intuitive vision is different from sensory vision, not seeing something but seeing the "what" of that thing. In this sense, phenomenology studies "whatness". This way, phenomenology establishes the bond broken between intuition and direct experience.

Martin Heidegger is at the forefront of those who follow the path of phenomenology opened by Husserl. Husserl believed that he had found the heir he sought for a long time in philosophy and left his professorship to Heidegger (Cevizci 2012: 540). However, there are some fundamental differences between them. The most important of these is that while Husserl handled phenomenology in an epistemological context, Heidegger handled it in an ontological context. In other words, the main point that differs from Husserl's is the hermeneutic approach in Heidegger's phenomenology.[35]

Heidegger criticized interpretation without considering human existence and centered on human experience in interpreting existence. Thus, for him, phenomenology is inextricably linked with hermeneutic or "historical" interpretation. In that context, he rejects the perspective that life is irrational and unsuitable for a philosophical and conceptual explanation. Instead, following in the footsteps of Dilthey and Simmel, Heidegger embarks on a conceptual philosophy of life to make it fully intelligible. He does it within Husserl's objective phenomenological reduction, with lived experience[36] as its source (Farin 2012: 26).

However, according to Heidegger, life is not irrational, and phenomenological intuition, as the lived experience of lived experience, is hermeneutic intuition. In other words, this inherent historicity of life constitutes hermeneutic intuition (Farin 2012: 26). This situation leads to the historical interpretation of Heidegger's ideas ontologically.

[34] For example, the invisible, remaining façade of a pattern perceived from a single perspective is completed in the mind in the sense of a perceptual context through categorical intuition.
[35] Heidegger dealt with the hermeneutic method on the basis of *Dasein*.
[36] Lived experience means "life" (Farin 2012: 26).

Therefore, for Heidegger, knowledge is primarily intuition (Heidegger 1990: 15), while intuition is historicity.[37]

Another philosopher and historian of the phenomenological movement who is of interest in considering the role of intuition is Herbert Spiegelberg. According to Spiegelberg, phenomenology has philosophical and non-philosophical roots, and there are as many phenomenological forms as phenomenologists (Spiegelberg 1960: xxvii).

Spiegelberg introduces the concept of phenomenological intuiting in his work "The Phenomenological Movement" (Spiegelberg 1960: 117-118). The concept expresses a kind of intuition conceptualized within Husserl's phenomenological reduction method. This intuition is one of the necessary conditions for revealing the phenomenon that the phenomenologist is working on, and it depends on the phenomenologist's effort[38]. The phenomenologist should encounter the phenomenon as freely and without prejudice as possible (Seamon 2000: 164). Thus, the phenomenon will be able to reveal itself perfectly. Phenomenology researcher Seamon refers to this moment of clarity as phenomenological disclosure. Nevertheless, the phenomenologist can only hope to experience the inner moment, where he/she can see the phenomenon more clearly by intuiting it (Seamon 2000b: 42).

The relationship between phenomenology and intuition summarizes the perspective of the modern philosophical period toward intuition. In the school, which tries to make sense of existence, people can only reach the essence with their intuition. In the period starting from antiquity to the modern period, although the conceptual equivalent of intuition has not fundamentally changed, the concept has preserved its mystical character. However, while phenomenology, which started with Husserl, sees intuition as a tool that reaches essences in an epistemological context, for Heidegger, intuition is a hermeneutic existential tool.

[37] According to Heidegger, intuition must be determined by the concept for the formation of ontological knowledge corresponding to revealing the existence of the existent. For him, intuition as ontological knowledge is essentially time.

[38] Patience and effort are the main elements that Spiegelberg's phenomenological intuition requires. However, it needs much practice, and the subject can learn it by developing unique ways (Seamon 2000b: 41). Because every phenomenological problem is unpredictable, it needs a different beginning, method, and presentation style. While Tesch (1987) evaluates phenomenological intuition as a flow and spiral, he sees the unpredictability and unexpectedness of the process as a positive element (p.231-232)

3.2. The Term of Intuition in Art

The close relationship of intuition with philosophy is also parallel in the philosophy of art as well. The deep relationship between architecture and art necessitates a review of the concept of intuition as it is used in philosophy of art at the point of forming the basis of the concept. The common values and expressions that art, philosophy, and architecture contain within themselves help to create the conceptual equivalent of intuition in architecture.

Aristotle's Poetics is the first work that philosophically investigates the phenomenon of art in the history of thought, and he distinguishes between habit-as-learning and habit-as-routine. Man is also a creature who creates, and Aristotle calls man's habit of creating, which goes with the right mind, "art" or *technē*. An object that could be other than what it is can be something that is created or made. So, "production" and "action" are two different things (Aristotle 2004: 149).

No single art does not carry a specific philosophical meaning and express a particular social ideal; in other words, art is philosophical (Ziss 1984: 64).[39] While Heidegger expresses being in the world that the work opens with the state of being in another place while next to work (Heidegger 2002: 23), according to Kant, art is a product created from freedom. Therefore, beauty can only be a critique, not a science. If it did, art would be scientifical or evidence-based. Kant's understanding of art influenced many art philosophers who came after him. The three most important of these are Friedrich Wilhelm Joseph Schelling, Benedetto Croce, and Martin Heidegger.

3.2.1. Friedrich Schelling's Intuition within German Romanticism and Poetry

Friedrich Wilhelm Joseph Schelling is one of thinker of German idealism after Fichte (Tunalı 1998: 149). He is known for his closeness to romanticism and as a poet with a soul. According to Shelling, the highest knowledge is the philosophy of art, and beauty rises above knowledge. Philosophy of art is the highest rung of philosophy or transcendental idealism; transcendental idealism is a "history of consciousness" (Tunalı

[39] According to Timuçin (2011), there is a difference in method between art and philosophy. Philosophy is thought, and art draws an intuitive framework. Sensing is seeing something in its entirety. German aestheticians call this intuitive understanding, that is, being one with the work, *Einfühlung*. (p.17).

1998). Ideas aimed by the philosopher are seen through art; complementing what the philosopher left behind, art is a different kind of "organon" of Philosophy (Copleston 2003: 119).

“Absolute” is one of the crucial terms Schelling’s philosophies. Since intuition is still considered a way of knowing, it is the subject of our knowledge in an “absolute way” (Schelling 1978: 27). In this context, Schelling's understanding of intuition appears as a kind of revelation. According to him, the most private areas can be reached with intuition, and the absolute hidden in the deep can be discovered. Schelling's absolute[40], that divine or spirit, is the unity and harmony of opposites. In this case, harmony represents unity. In other words, it is absolute that the disjointed parts can be reconciled together. This situation is embodied in art in its purest form.

At that point Hançerlioğlu (1976) states that, according to Schelling, intuition, contrary to scientific learning, is a superior form of learning that comprehends the essence of objects with all their reality. According to him, intuition is a mysterious and extraordinary power that attracts the "I" isolated from the changes of time and all kinds of external things and gives the subject the knowledge of eternity. These are the most secret and private experiences, and all knowledge of a world above the senses depends on it alone (p.74).

Attributing particular importance to intuition in this way, Schelling admits that intuition has not yet completely freed itself from duality or the law of opposition. Therefore, he states that the soul perceives the absolute mainly as a sense of beauty in nature and art. In other words, in Schelling, where history is a drama for itself, nature rises to the level of a work of art. Moreover, the perceptual experience of a genuine work of art like this is accompanied by an “infinite sense of satisfaction”. What gives rise to this feeling is an internal and internalized sense of “finality”; this unique sense is the feeling that “nothing should be added or subtracted” (Dündar n.d.).

This art philosophy of Schelling is expressed especially in the early romantics' poems. Nature, seen as a work of poetry in Schelling and other German romantics, should be read as a language. The Romantics put intuition and artistic feeling as a power above all conceptualizations, judgments, and thoughts, against the Enlightenment's attitude that glorifies the mind and sees it as the only power (Copleston 2003: 14). They saw art as a

[40] For Schelling, the absolute is essentially divine. According to him, what is grasped in divine is grasped in the whole. He pushes all the mystical limits through reality and transcends it, making divine in "I" and “I” in divine.

manifestation of life (Beiser 2003: 19-20). For the early romantics, only art could unite the divided forces of humanity, provide a model of virtue, and guide human actions.

For this reason, romantics best express themselves through one of art branch, poetry. While they emphasized the role of intuition and emotion in poetry, they also tended to liken philosophy to poetry (Copleston 2003: 19-20). Because only in poetry the infinite and absolute come into the language. Moreover, poetry is the representation of the truth, and this truth can only be reached with intuition.

Friedrich Hölderlin is a close friend of Schelling and described by Heidegger as the poet of poets in a superior sense (Heidegger 2014), stands out as one of the leading poets of the German romanticism. According to him, the absolute can only be grasped by intuition (Frank 2012: 89). Hölderlin's famous work Hyperion (1797) reveals this intuition as perceptible through love, and poetry gives this direct sensation.

He concentrates on the concept of being. Being is what expresses the bond between “subject” and “object”. These are not piecemeal but unconditionally linked. Such an unconditioned being can only be mentioned in mental intuition. This bond is such a bond that the separation of subject and object harms the essence of both (Hölderlin 1986). Hölderlin avoids this fragmentation with Schelling's concept of aesthetic intuition; he attaches particular importance to the intuitive responses underlying the language he uses in his poems.

It is crucial to consider intuition as a tool that establishes a connection between the subject and the object. To represent this bond, Hölderlin draws on the power of words. Therefore, the relationship between intuition and representation comes to the fore. It is a critical point to convey some feelings, emotions and meanings to the reader or viewer, especially in a discipline based on representation, such as art. Moreover, one of the common denominators of architecture and art disciplines is representation.

However, there are two different perspectives on intuition and architectural representation. The representations created by the architect in the architectural design process, which is one of them, are closely related to the intuitive vision of the architect. In other words, there is an intuitive vision at the point of creation. Another point is related to the way the user or viewer interprets these representations. In this case, there is an intuitive correlation at the context of understanding.

3.2.2. Benedetto Croce's Intuition within Expressionism and Sculpture

Benedetto Croce, one of the crucial names in the philosophy of art, blends intuition and art, aesthetics and philosophy in a fine line in his great work The Essence Aesthetics-*Breviario di estetica* (1902). According to Croce (1921) "art is a true aesthetic synthesis, "a priori" of feeling and image in the intuition" (p.39). However, intuition does not appear in Croce as feeling the "absolute that cannot be known" as in Schelling, and Schelling's understanding of spirit appears as absolute (divine). Whereas, for Croce, "spirit" is life and its activity, and intuition is also knowledge of this activity. However, the artist is the only one who perfects his/her general intuitions, not a supreme person who has undertaken a lofty task.

Therefore, intuition is depicted as belonging to both the artist and the ordinary person in the framework drawn by Croce.[41] According to him, it is unacceptable to separate artistic intuition from everyday intuition as a more intense intuition (Croce 1953: 13). This conclusion reached by Croce is an actual result of contemporary aesthetic theory. Because for him, aesthetics is not a luxury activity but a primary activity that has its roots in daily life intuitions. At that point Tunalı (1972) states "so, there is only one intuition, from everyday intuitions to the highest intuitions of art, and likewise, there is only one science that studies all these intuitions; aesthetics" (p.34).

In Croce's aesthetic, it is impossible to talk about the existence of neither aesthetic phenomenon nor artistic creation without expression. The first phenomenon that activates the artist as an artist and creates him/her is the impression; the impression is the first form of expression (Croce 1953: 104). According to Croce, intuition, a spiritual activity separate from perception, sensation, and imagination, is an expression. In other words, intuition is synonymous with expression in Croce's aesthetics (Hague 2003: 52; Tunalı 1972: 31). In this context, his most significant impact on the field of aesthetics is that he put forward the concept of intuition in aesthetics, opposing the traditional aesthetic understanding stemming from Baumgarten, Kant, and Hegel to be the research field of beauty or art. Because according to him, first of all, the soul is based on intuition (Carr 1917: 71-72).

Croce's philosophy's unique point related to intuition, the first condition of artistic creation, and as such it is the first spiritual activity (Tunalı 1973: 8). According to Paul

[41] Artistic intuition generally stands out as a particular type of intuition that differs from general.

Carus (1916) Croce's understanding of intuition is different from intuition in mystical texts and Kant's understanding. In mystical intuition, intuitions are described as revelations from divine to the artist. Therefore, the artists claim that they discovered their thoughts, not created them. Besides, Kant's concept of *Anschauung* is very different. There is not the slightest trace of mystical thought in Croce, and it is about the sense of sight (p.312).

Croce argued that feelings and emotions must be expressed for them to come into existence and that this is a cognitive process for the positivists; He also opposed rationalists by separating logical knowledge from intuitive knowledge. In this context, he mentions two types of knowledge: logical and intuitive (Croce 1953: 1).[42] While intuitive knowledge is independent and autonomous from logical knowledge, logical knowledge is based on intuitive knowledge. For example, logical knowledge of "water" cannot occur without intuitive knowledge of “this water”. That intuitive knowledge is necessary for logical knowledge to occur (Tunalı 1972: 28). Tunalı (1972) states that “according to Croce these are intuitions: this river, this lake, this stream, this rain, this glass of water. These are also concepts: water, but that which is water, in this or that aspect, not specifically, but directly whenever and wherever; water is a substance that exists for an infinite number of intuitions” (p.28).

These views of Croce on intuition gave a new direction to the philosophy of art, and a new trend began to be founded thanks to him. At the beginning of the 20th century, a differentiation in art began to be felt in various European countries with Croce. Artists adopted the expression of the inside instead of the impression of the outside as their understanding of art (Antmen 2008: 33). Based on the thoughts of Benedetto Croce, this Expressionist theory brought the concepts of expression and language instead of the criterion of beauty, which was effective until the end of the 19th century (Bahr 1982). This situation is also characteristic of the first art movement with a revolutionary spirit, which dominated 19th-century art and opposed objectivity (Lloyd 2000).[43] With this

[42] It is either knowledge from fantasy or the mind, individual or universal.

[43] The understanding of art, which has been going on since Classical Greece and aims to reflect reality as it is, has reached its final stage with Impressionism. There is a relationship between the independence of color from the object and the re-recognition, and production of the object. Thus, when Expressionists express emotion, they tend to take it away from its 'ideal' form. On the other hand, this removal created the need for abstraction in art and added a new dimension to the expression-intuition association.

revolutionary action, seeing art as a language and an expression of the intuitive power of the soul has become one of the most common understandings of the 20th century.[44]

Sculpture, which has been in a priority position since ancient Greece, started to take shape on new ground with Expressionism. Expressionism in the art of sculpture aimed to bring the subconscious and the artist's feelings to the forefront to avoid one-to-one imitation and description. Because sculpture is in life, it cannot be removed from life (Hammacher 1961). As the artist's reality gained importance, with the help of light, shadow, and atmosphere effects in modern art, the art of sculpture moved towards more expressive forms of expression. Auguste Rodin came to the fore as one of the leading actors of this formation and modern sculpture and influenced the famous painter Monet with his thoughts (Read 1971: 40). While the perception of beauty in sculpture can still be considered synonymous with smoothness for the viewers of the period, Rodin insisted on transferring his thought to his art, despite this admiration (Gombrich 1951: 398-399).

Moreover, nature stands out as an important figure for Rodin. He thinks the veil covering nature should be lifted and revealed (Lenoir and Derman 2004). Therefore, he removes nature from logical knowledge and redefines it through intuitive knowledge. This definition is an example of the artist's expression of intuitive knowledge. Expression is in harmony with intuition, as Croce emphasizes. Another artistic style of Rodin is the unfinished impression he applies in his works. He has sometimes left some of the stones in their rough state to give the impression that the figure has just emerged and taken shape (Gombrich 1951: 399). That establishes an emotional bond between the produced work and the audience. This method, in which intuition is predominantly felt, is essentially a tool adopted by impressionist artists.

Croce's approach to artistic intuition in the same frame as everyday intuition expands the boundaries of the concept. This kind of expansion leads to the formation of different layers. At one point, intuition comes to the fore as the “ordinary”, on the other hand, “extraordinary” is articulated in relation to this ordinariness. It has a similar structure in architecture. That discipline is closely related to daily life, on the other hand, requires an intellectual accumulation. In such a complex structure, instead of different forms of intuition, a single intuition consisting of different layers can be more crucial.

[44] Another pioneer of this formation is Nietzsche's views on art. According to him, someone who wants to be creative must start by destroying the whole. These views of his had an intense effect on the German expressionists (Antmen 2008: 34)

Another vital point in Rodin's work is that he preferred to not complete his artworks. At this point, two different intuition perspectives discussed in Schelling come to the fore again; the subject's own intuition, which architect uses in the act of creating, and the viewer's own intuition, which viewer uses at the point of perceiving this object. In the architectural design process, the existence of the architect is an essential input in the formation of intuition. However, establishing an "incompleteness" strategy for the user's intuitive vision is also worth questioning.

3.2.3. Martin Heidegger's Intuition within Post-Impressionism and Painting

One of the philosophers who evaluated art without reducing it to morality was Friedrich Hegel. According to Hegel, at the point of expressing the truth, what the work of art wants to communicate can be described with philosophical thought (Inwood 2002: 170-171). However, according to him, art cannot be fully conceptualized. While completing these thoughts, Hegel talks about the decline of art in the modern period. According to him, the decline of art does not mean the end of art but a periodical coming to an end (Lifshitz 1979).

Martin Heidegger criticized this situation in his epilogue to the 1936 edition of "The Origin of the Work of Art". Unlike Hegel, Heidegger argued that art should be evaluated regardless of the historical process. According to him, the accuracy of this judgment put forward by Hegel has not yet been confirmed (Heidegger and Krell 2011: 134-135).

Gadamer, defining art as a symbol, states that art refers to something not present in the visible and intelligible realm. On the contrary, the work of art undertakes the task of revealing, declassifying, and making it open for Heidegger. The practical and technical powers of the subject help to use the means for a specific purpose and to reveal hidden things. In this sense, art is only one of the human experiences in the world. Thus, the work of art allows for an increase in wealth (Gadamer 1986: 35). Without art, this increase will be deprived because a work of art cannot be compensated for. That means the work of art expresses what cannot be expressed otherwise. A work of art cannot be replaced by anything else (Gadamer 1986: xiii).

On this uniqueness, Heidegger follows the path of explaining the origin of art through existence and truth with hermeneutic cycle. According to him, art reveals the true

existence or factual nature of things and determines the truth through the work of art.[45] Art is both the origin and purpose of the work of art. For Heidegger, the origin of the work of art is also the question of the essence of the work of art since the existence of the work of art and the artist is possible through the origin of art (Heidegger 2002: 33).[46] The problem of essence gives art an ontological perspective from a philosophical point of view.

Rather than asking why something is there, Heidegger poses the question of what it means for that thing to be there. According to him, this expression can also be defined as what is to exist, which is the fundamental question of philosophy (Carman 2003: 13). His work on art aims to present an ontology-based on art in this way. Ontology is looking at the issue of how it manifests itself in the work of art. In this context, Heidegger puts a distinction between object and thing in his work titled "The Origin of the Work of Art". Subsequently, he explores whether the work of art is a thing, an object, or a tool. As a result of this research, Heidegger (2002) defines art as half object, half tool (p.18).

When Heidegger considers being *Poesis*, he reminds the relation of being with *techne*. Thus, he describes the meaning of *techne* as a kind of wisdom. There is a relationship between regulation and domination (Heidegger 2000: 18). At this point, he complains about the lack of control of technical wisdom. Turning to *techne* and art elsewhere, he states that wisdom and knowing are realized not only by seeing but also by intuition. This situation is such an intuitive view that it creates a moment that will go further than the present moment of the seer. It reveals what we call imagination and fiction. In The Origin of Work of Art, Heidegger considers this intuitive attitude as a notion that moves towards the future in both technical production and artistic production.

The Origin of the Work of Art (1935-1937) is an essential compilation of Heidegger's philosophy of art. In the book, Heidegger, while constructing the link between art and truth, identified "facts" that the way to know art is to act from the work of art. He put the work of art instead of the word art first in the art-truth equation. In this context, art has considered "the existence of a work" to clarify the artwork of artwork. According to him, a work of art, with its modest existence, resembles a mere object formed by itself and not forced into anything (Heidegger 2002).

[45] However, according to Heidegger, art is not an imitation and representation of reality. For this reason, the things that art represents do not have to coincide with reality.

[46] According to Heidegger, the truth lies in the essence of art, and the "created truth" is reflected in the work of art. The work of art is extraordinary and subjective. Artworks transform the usual forms into entirely different forms and take the viewer to other worlds. It is the source of human existence.

In that context, Heidegger expressed this analogy through the portrait of a pair of farmer's shoes, the famous work of Dutch post-impressionist painter Vincent Van Gogh. Impressionism is called a movement with Monet's Impression: Sunrise painting appears as the painting of the inner instead of the real world (Hauser 2005).[47] Post-impressionism, which is vaguer than the word Impressionism, creates a more comprehensive expression by including the previous movements (Thomson 1998: 7).

The Post-Impressionist Movement is a French art movement that developed between 1886 and 1905 (Brodskaïa 2018: 1). Its principal painters were Paul Cezanne, Vincent van Gogh, Paul Gauguin, Georges Seurat and Henri de Toulouse-Lautrec. Of these artists, van Gogh and Gaugin adopted a tendency to express emotions directly. At that point, Heidegger emphasizes the effortlessness and naturalness[48] of the work by establishing a relationship between a painting of Van Gogh's about farmers' shoes and a piece of stone. This spontaneity brings with its intuition. The intuitive is the way Heidegger establishes this relationship rather than a result of the relationship he establishes between the work of art and the truth. This form itself creates and defines intuitiveness. According to him, intuition is a phenomenon revealed by the synthetic when considering the synthetic and analytical being. Therefore, the situation in question is not to reach the work by making analyzes but to enter the world that the work opens directly from work itself. This is one of the most critical elements that make the process intuitive.

According to him, from the moment the work of art becomes work, the object in work moves away from its object character. After this point, when one looks at the work, one can see the work itself, not the object. A border is drawn between the existence of the object in the work and the object's presence in the work, which prevents the artist from detecting the object's existence. With this limit, the subject interacting with the work, thanks to his intuition, turns his direction from the "mere object existence" to "the existence of the work". This thing, in other words the artwork itself., which is experienced intuitively and thought to replace the objective character of the object in the work, is the artist's existence, the art itself, and the artist's life. This hermeneutic point of view of

[47] This situation changes the act of seeing. For the Impressionist, seeing transforms nature into a process of development and deterioration. Everything balanced and consistent is distorted due to metamorphosis and takes on the feature of being unfinished and incomplete (Hauser, 2005: s.xxviii). This unfinished state also stands out as a distinctive feature in post-impressionist artists. Especially Paul Cezanne's paintings give the impression of being incomplete, which makes the artwork open to the intuition of the person observing the work.

[48] Although there is a natural difference between the work and the stone, the key here is spontaneity.

Heidegger adds the context of the subject-object relationship to his theory of intuition, which he put forward as a way of establishing a relationship.

Heidegger's handling of art and the phenomenology movement he adopted in a hermeneutic context causes intuition to be placed on an ontological ground. This situation can also be seen as a breaking point in philosophy. Although the act of questioning existence did not begin with Heidegger, it began to gain importance with his statements and writings. While intuition stood out as a sacred tool in ancient philosophy, modern philosophy attributed a human characteristic to the concept.

Thanks to his ontological views, Heidegger became one of the philosophers whose writings and statements are cited significantly in architecture. The character of architecture that puts the user in the center can be shown as one of the main reasons for this situation. In such a framework, the handling of a human concept such as intuition through Heidegger becomes an essential issue. The close relationship of intuition with the experience and life of the architect in the architectural design process moves the concept away from a mystical vision. This can be thought of as one of the layers of intuition mentioned in Croce; a hermeneutic approach articulated next to a mystical vision.

3.3. Intuition in Mathematics

Besides philosophy and art, another discipline in which the concept of intuition is deeply inquired from a critical point of view is mathematics. The relationship between architecture and mathematics goes back to the ancient Egyptian period. Some mathematical expressions such as measures, ratios, and numbers can be shown as the common points of this relationship. Therewithal, it is seen in the literature that such precise mathematical objects are related to an abstract concept such as intuition. This relationship takes shape over the existence of these objects. In other words, any mathematical objects are the product of a mind. This hypothesis questions the relationship between number-like mathematical objects used in the architectural design process and the lived experiences of the architect.

When modern mathematics began, two ideas dominated the mathematical tradition. One of them is proof-based geometry[49], which came to the forefront with Euclid of

[49] Euclid of Alexandria organized the mathematics and geometry of Ancient Greece and the Near East. He wrote "Elements", the history's most widely used mathematics and geometry textbook.

Alexandria in ancient Greek mathematics, and the other is the concept of number and algebra[50], which came to the fore with al-Khwarizmi in Indian and Islamic mathematics. On the other hand, today's mathematics has been shaped by the developments caused by two important inventions in the 17th century. The first is Descartes' combination of "geometry and algebra", two branches of mathematics that had seemed utterly separate until then. In this work, now known as analytic geometry, the opportunity to determine the geometric properties of curves with algebraic formulas has arisen using coordinates. The second significant development is the "infinitesimal number", which Newton and Leibniz created independently of each other and later became the basis for the work called analysis (Yıldırım 1988).

In modern mathematics, there are generally two understandings of theory. Firstly, instrumentalism that does not trust intuition, and secondly realistic attitude that puts intuition in relation to mathematical accuracy. According to The Cambridge Dictionary of Philosophy (1995), "instrumentalism, in its most common meaning, a kind of anti-realistic view of scientific theories wherein theories are construed as calculating devices or instruments for conveniently moving from a given set of observations to a predicted set of observations." (p.379). That means reality does not present itself to the mind. This situation questions the existence of self-evident truths.

On the other hand, theorems in Euclidean geometry point to actual knowledge of the universe. The truth of axioms and postulates is self-evident. Moreover, this self-evidence can be seen intuitively (Stillwell 2010: 19). The intuitive tradition emphasizes this intuition's importance in forming mathematical knowledge. Accordingly mathematical objects can only be considered to exist if they can be constituted.

A second critical phase the history of mathematics coincides with the middle of the 19th century. This period was when the foundations and origins of mathematics and its broad fields were investigated. The foundations of the modern philosophy of mathematics were laid in this period, and many issues, such as the nature of numbers and mathematical knowledge, have been discussed (Ferreirós 2008). Moreover, the dominance of rigorous proof methods used in antiquity began to wane. Based on this, the main philosophical

[50] al-Khwarizmi is the scholar who introduced "algebra" to mathematics. He is known as the inventor of "0" (zero) and the unknown sign "x".

approaches are “logicism” pioneered by Frege, “formalism” pioneered by Hilbert, and “intuitionism”, of which Brouwer is among its prominent representatives (Gür 2004). [51]

In the 19th century, mathematics faced a series of problems. The most important of these is the emergence of alternative geometries to the Euclidean geometry (Weintraub 2002: 9). Nikolai Ivanovich Lobachevsky laid the foundations of a new geometry called Non-Euclidean Geometry in 1829, besides showing that the fifth proposition of Euclides could not be derived from the other four (Boyer and Merzbach 2011: 494).

In order to end the discussions on the foundations of mathematics, David Hilbert thought that mathematics needed a new formation (Hilbert 2019: 442). At that point he used a formalist method to transform mathematics into an axiomatic structure. With his famous work Foundation of Geometry (1899), Hilbert aimed to transform mathematics into a symbolic system while trying to put mathematics on solid foundations (Bostock 2009). This situation opened the door to formalism. According to the formalists, mathematics is a symbolic system that deals with abstract objects and relations and is devoid of content. They gain meaning and content only when used in a theorem's definition, or proof. In other words, formalism claims that mathematics is a game played with signs on paper (Gür 2004: 43). Hilbert's main achievement with the Foundation of Geometry was that he presented this mathematical field as an axiomatic system contained within central concepts devoid of any particular intuitive meaning (Corry 1997: 84).

Another of the names shaping the philosophy of mathematics is Henri Poincaré, who was interested in non-Euclidean geometries. Although Poincare understood Hilbert's views clearly, he thought it was against mathematics's spirit (Beeson 2013: 85). The main reason is that logical approaches focus on evidence or the result; however, the important thing in the intuitive approach is the process itself. In his article Mathematical Creation (1910), in which he explains mathematical creation through subconscious processes, Poincaré draws attention to the fact that everyone cannot realize the mathematical creation process (mathematical intuition), a specific accumulation is needed, and the creative process does not develop definite known logical processes[52] (Poincaré 1910: 324).

[51] However, some philosophers of mathematics have opposed this kind of foundationalism. For example, Putnam considers mathematics a non-explanatory subject, and therefore, he does not have any concerns about grounding it. According to him, mathematics has no foundation, nor does it need a foundation (Yıldırım 1988).

[52] Poincare's definition of mathematical intuition as a concept related to personal knowledge references the dialectical relationship of intuition with expertise.

Poincaré gives particular importance to these process layers. In one of his articles, he likens geometry to a then-famous machine in Chicago, where living pigs enter from one side and exit as sausages from the other. Axioms that are input in geometry turn into proven theorems in output. However, the critical point here is the level of awareness of the machine while performing this operation. According to him, it is enough for a mathematician to be as aware of the process when generating theorems as this machine is aware of what it is doing. Therefore, according to Poincaré (2010), it is not necessary to know what it means to prove a theorem (p.147). Because Poincaré considers this process cannot proceed mechanically; intuition, consciousness, and even the subconscious are essential components of the mathematical and scientific discovery process (Yıldırım 1988).

Poincaré observed scientists, especially himself, during his work; in this way, he saw how important the functioning of the process is for scientific discovery. In this way, he tried to base his philosophy of science by constructing his thoughts about mathematics on practice. According to him, three kinds of intuitions affect the mathematical process and create the discovery in mathematics. The first is intuition belonging to the senses and imagination, the second is generalizations created by the induction method, and the third is pure number intuition of mathematics (Poincaré 2007: 20). He thought there were possibilities in mathematics for using each of these intuition types and benefits to be provided to mathematics by using them.

With intuition being used as an essential concept in mathematics, Luitzen Egbertus Jan Brouwer added another dimension to the discussion of the ground of mathematics. While Hilbert sought to demonstrate the consistency of algebra through formalism, Brouwer intended to develop an intuitive approach to mathematics that could be based on the ideas of Kant, Kronecker, and Poincare, using only explicit, intuitively verifiable constructs (Burton 2011: 311).

Introduced by the mathematician Brouwer in the early 20th century, heuristics is a philosophy of mathematics that argues that mathematics is a purely formal creation. Brouwer says that formalism and intuitionism differ in their view of mathematical precision. According to him, intuitionists believe that certainty exists in the human mind, while formalists believe it exists on paper (Brouwer 1913: 83). The concept brings to the fore the problem of the existence of mathematical objects and organizations. The foundations of mathematical progress, which are tried to be explained or reduced to analysis and logic propositions, are the result of intuitive processes (Brouwer 1981). The

primary purpose of Hilbert's publication of the Foundation of Geometry is to prove that classical mathematics is consistent and to protect it from the criticisms of Brouwer, who finds mathematics dangerous (Davis, Hersh, and Marchisotto 2012: 373).

Brouwer's intuitionistic philosophy is his refusal to use the law of logic called the "law of excluded middle" in mathematical proofs. According to this law of classical logic, which has been used since Aristotle, a proposition is either true or false. The intuitionist recognizes a third possibility and argues that meaningful propositions with neither truth nor falsity may exist (Barker 1964). According to Brouwer, this method of reaching the non-law-based means seeing mathematics as a reality independent of the senses outside the subject. Instead of this method, the objects whose existence will be proven should be constructed mathematically. According to the construction method, to say that an object exists, it is necessary to show it.

Brouwer's concept of intuition includes the thoughts of many philosophers before him. For example, Brouwer distinguishes "inner" intuitive time from "external" time. His concept of the primitive intuition of mathematics relates only to internal, in other words intuitive time (van Atten, van Dalen, and Tieszen 2002: 204). It is a concept Brouwer inherited from Husserl. However, according to Barker, Brouwer defends Kant's "pure intuition", which is the starting point of number mathematics, and therefore calls his philosophy "intuitionism" (Barker 1964: 123). However, while Kant has a pure intuition concerning time and space, Brouwer only accepts number intuition based on time (Bernays 1964: 11).

Kurt Friedrich Gödel is one of the mathematicians who made essential contributions to the intuitionist movement. Gödel was introduced to Kant's philosophy of knowledge, which influenced him greatly during high school (McElroy 2014: 119). His close relationship with philosophy led him to turn to the philosophy of mathematics. Thanks to this interest, Gödel put forward a theorem in which he stated that a system complex enough to be a basis for arithmetic could not be complete (Mayblin, Cryan, and Shatil 2014). In 1930, Gödel started a new era in mathematics by solving the incompleteness theorem. According to this theorem, also known as "Gödel's theorem", no strong enough formal system could be perfect because it could reproduce every true statement as a theorem. In other words, Gödel's theorem showed that what is true and provable are not the same (Casti, Akça, and Depauli 2004: 28). [53]

[53] Gödel's theorem prompted the great minds of the time, such as Turing and Neumann, to reflect on the subject. In 1935 Turing concentrated on Hilbert's third question. However, for this, it is necessary to

"Incompleteness theorems" question the systemic skeleton of mathematics in general. According to the theorem, it is not possible to establish a consistent and complete axiomatic system. In other words, mathematics cannot be made into a complete formal system (Nagel and Newman 1958: 100-102). By adding new definitions and axioms, propositions can be proved, in other words, they can be shown to be true or false, and contradictions can be eliminated. However, such additions will reveal different propositions. Therefore, a set of axioms tried to be obtained about a subject will be either inconsistent or incomplete. So, for example, if it is assumed that the axioms do not prove false theorems, then the axiomatic system will be incomplete. In that context, true theorems will emerge from these axioms but cannot be proven. What Gödel does here is to produce a sentence saying, "I cannot be proven" (Mitchell 2009: 60).

Gödel continued interested in the continuum hypothesis after his proof in 1940. The article, "What is Cantor's Continuum Problem?"[54], is the best example on this topic. In this article, Gödel criticizes the intuitionist tradition's attitude of seeing the problem of continuity as meaningless (Gödel 1947: 518). Gödel neither saw mathematical objects as collections of symbols like those in the formalist tradition nor did he follow the path of the logician tradition. According to him, objects cannot be derived from purely logical principles. Intuition is at the forefront as an essential tool in forming this information.

Gödel's view shows similarities with the intuitive tradition in the philosophy of mathematics. However, Gödel departs from the intuitive tradition regarding the existence of mathematical objects. The intuitive tradition holds that mathematical objects exist only when they can be constructed. Gödel is a Platonist (Brown 2008: 12). According to him, mathematical objects also exist independently of the mind that thinks about them (Gödel 1947: 518). At this point, the learning style of mathematics is evaluated within the framework of remembering this knowledge. In Gödel's approach, on the other hand, the subject can obtain the knowledge of abstract objects in the same way that one obtains the knowledge of physical objects with the senses. However, Gödel's intuition is not Kantian logical intuition or an extension of it (Hallett 2006: 113). His intuition is an intuition in

redefine the concept of the algorithm first. Following Leibniz's intuition, Turing developed an intelligent machine that he thought mimics the computational processes of the human mind. This machine was the first step for programmable electronic computers (Mitchell 2009: 60-61)

[54] Cantor succeeded in grading infinity by proving that sets have different infinite sizes.

the status of a unique ability, which enables it to be obtained in his knowledge of abstract objects; Mathematical intuition[55] (Hallett 2006: 119).

The examination of intuition in mathematics seems to be a groundbreaking development in its period. The existence of mathematical objects, which are so dependent on precision and reality, has been questioned with the concept of intuition. Are these objects a product of the human mind, or do they exist outside the mind with their provable features? This issue can contribute to our interpretation of the concept in the architectural design process. Any object described by the human mind is closely related to experience. The mind can intuit as much as it experiences. This close relationship between intuition and experience brings subjectivity to the fore.

Can an architect's intuition be similar to the concept of intuition studied in philosophy, art and mathematics? In particular, it is seen that the concept of intuition, which stands out as a mystical insight in philosophy, stands out as a feeling in art. It is obvious that the condition in mathematics is a little distinctive. The problematic of the origin of numbers somewhat eliminates the mystical aspect of the concept. However, the critical issue here is that the concept stands out as an action done by the mind. This situation associates the concept with experience.

[55] Lucas, one of the Oxford philosophers, states that in his work titled Minds, Machines, and Gödel, Gödel reveals an essential distinction between human reasoning-mechanical reasoning in connection with mathematical intuition (Lucas 1996: 103-104).

CHAPTER 4

INTUITIVE THINKING

The subject of intuition has attracted attention in philosophy, psychology, and the natural sciences for centuries, from Aristotle to Albert Einstein, and they all consider intuition a unique method of knowing (Sadler-Smith and Shefy 2004: 78). To some the concept of intuition, which is examined in philosophy, art, and mathematics, has a metaphysical structure. In contrast to some such as Hançerlioğlu, intuition could be defined through non-metaphysical connotations. Under the title of dialectical materialism, Hançerlioğlu (1976) defines intuition as "knowing what happens suddenly as a result of a specific accumulation of experimentation and thinking" (p.73). In this sense, intuition opens the door to the concept of intuitive thinking, which results from a complex decision-making mechanism based on experience.

Associating intuition with experience rather than an inner vision in a metaphysical sense is frequently seen in the literature under the heading of decision-making approaches. In the context of decision-making, it is seen that the concept is explained under two main headings: Intuitive thinking and analytical thinking. Many theorists have addressed the distinctive nature of these two ideas as a subject of psychological research through the dual thinking model.[56] These two concepts stand out as the distinctive components of one's judgments and choices and are closely related to one's daily experiences (Hogarth 2002: 3).

4.1. The Term of Intuition as a Decision-Making Tool

Although intuition is a familiar subject in many disciplines, research into it especially in decision making studies, did not become widespread until the beginning of the 1970s. This situation is closely related to how intuition is defined. According to Simon (1992) "intuition is nothing more and nothing less than recognition (p.155). Decision-making approaches, including definitions of intuition and intuitive thinking, are generally

[56] For example, Bruner, Chaikin & Trope, Epstein, Hammond, Sloman.

based on rational decision theory and the arguments presented by the bounded rationality approach. However, they also have different models, related topics, and arguments.

In the broadest sense, the “decision” is a choice about do's and don'ts to produce a satisfactory outcome (Baron 2000: 6). At the same time, “decision-making” is an interdisciplinary field that seeks to understand "decision-making" theory (Buchanan and O’Connell 2006: 33). The classical decision-making process has a structure based on rationality. However, the factors defined as time pressure, high expectations, dynamic and uncertain contexts, and hazy and conflicting goals, which are also defined as today's environmental conditions, have caused decision-making research to shift in different directions. The view that adopts the “Garbage Can Model” (Cohen, March, and Olsen 1972), the view that emphasizes “Influence” and “Politics” (Pfeffer 1992), and the thought of “Heuristics and Biases” (Tversky and Kahneman 1974) have revealed that decisions move away from rationality (Tsang 2004: 928). Under all these differences, decision-making research is handled in four categories. These are prescriptive, normative, descriptive, and naturalistic (Bell, Raiffa, and Tversky 1988).

The “Prescriptive” approach is a model that emerged with decision-making studies in psychology. This model focus on how the best decision or a better decision is made, in other words, focuses on the development of the best decision-making process (Pitz and Harren 1980). Since the advantages and disadvantages of each possible outcome are evaluated in this process, the decision is considered optimal. Theories such as expected utility theory and Bayesian theories provide statistical data to help the decision-maker reach the optimal solution (Elliott 2005: 4).

“Normative” approaches explain many real-life problems that prescriptive models cannot explain. Rational decision-making models are among the normative studies that tell how the decision should be made. In that model decision is not natural, it is a voluntary action. Therefore, there is a need for rules, norms, and standards (Howard 2007: 35). In this approach, it is accepted that the decision-maker knows the uncertainties of the options and the outputs of the options.

In “Descriptive” model people make decisions to satisfy themselves. In other words, individuals prefer the good enough to the best (Shaffer and Lichtenberg 1987: 6). These approaches argue that the decision process cannot be operated rationally, so, deviations from the process to the decider due to some shortcuts (Bell, Raiffa, and Tversky 1988). The best known in this model is the Heuristics and Biases approach proposed by Kahneman and Tversky.

The criticism related to the inadequacy of classical decision-making approaches in real-life situations has led to "Naturalistic" decision-making (NDM) theories. The most important feature of this model is that the studies in laboratory conditions are not conducted in natural conditions, and the focus is on the action, not the options (Polič 2009: 79). It is applied when the classical decision-making options are clear, and the possible consequences of any option are known. Decision-makers are often inexperienced; the research topic of the selection process is the "best alternative" (Polič 2009: 81). In this process, intuition, which is gained through experience and consists of implicit knowledge, comes to the fore in the context of decision-making.

Herbert Simon[57], who is at the center of these studies, summarizes the backbone of rational and limited rational decision models with the distinction of economic man and administrative man. According to the classical decision-making model, the decision-making activity is based on an entirely rational and objective basis (Hoy and Miskel 1991: 300). Here, it is assumed that the decision-maker knows all the alternative solutions and can list them. Starting from the predictions of the classical decision-making model that do not match reality and practice, Simon (2013) stated that such a degree of rationality would not be sufficient to explain decision-making (p.241).

The "bounded rationality"[58] approach, first developed by Simon in 1955, stated that there might be deviations from rational behavior and that intuition and beliefs can effectively affect economic decisions (Kahneman 2003: 163). Simon defines that approach as the marking stone placed halfway in the middle of psychology and economics (Klauss 2006: 29). According to him, behavior following full rationality cannot be expected from people, rather people decide within a bounded rationality. Since individuals do not have unlimited brain and time power, they cannot always solve problems most appropriately. For this reason, moving away from the rationality phenomenon shows itself in the decisions made (Thaler and Mullainathan 2008).

Simon developed the concept of "Administrative Man" as a result of this criticism (Scott and Davis 2015: 53). In his book "Administrative Behavior", Simon (2013) used the concept of administrative man to describe an individual who acts by taking into

[57] Simon, a Nobel laureate, is a self-taught political science, business management, and psychology professor and spent many years at Carnegie Mellon University. His work, which made him known and essential in the field of management science, is his book "Administrative Behavior" published in 1947.
[58] The concept meets humans' limits of selfishness and rationality. Since the individual cannot reach perfect information in the existing and obtained information, unlike the rational individual, s/he will sometimes reach misconceptions and sometimes incomplete information by resorting to several cognitive ways (Diamond and Vartiainen 2007: 2).

account the facts, limitations, and conditions and is as rational as possible while making a decision (p.92). In this context, the issue that Simon emphasizes is whether there are factors that determine the action of the decider, moreover, this situation provides rationality, but this rationality is limited to the scale of the subject, and this situation brings to light a secondary concept: Intuitive thinking.

Simon sees intuition as a non-irrational process without mysticism and a magical sixth sense (Prietula and Simon 1989: 122). According to him, intuition is a traditional technique for non-programmable decisions, creativity, and reasoning. In this context, intuition is not independent of analysis. On the contrary, these two concepts come together and form the basis of decision-making systems (Simon 1987: 67).[59] The more sudden and inexplicable an intuition is, the more it requires a long and conscious experience beforehand. According to Prietula and Simon (1989), intuition is the way experts make decisions or reasoning based on knowledge and abilities, in other words, the decisions made by experts are the results of intuition and logic (p.122).

Robin Hogarth, a decision-making researcher who approaches intuition from a similar angle, draws attention to the difference in perception and intuitive thinking between the expert and the novice, like Simon. According to him, daily decisions are usually based on intuitive thinking; however, the tools accompanying this thinking are permanent and temporary information. Hogarth defines the source of endless knowledge as the level of knowledge and expertise a person has regarding the triggering stimulus. In that context, any expert in a particular field will perceive a stimulus differently than a novice in that subject[60] (Hogarth 2014: 74). Therefore, a person's proper and correct intuitive way of thinking about a topic is closely related to that person's expertise. In this context, Hogarth defines the four characteristics of intuition as follows: “1) expertise, 2) speed of knowing, 3) lack of a deliberative thought process, and 4) experience and insight” (Quirk 2006: 39).

After the problem of the source of permanent information, Hogarth, while testing the validity of intuitions, distinguishes between "kind" conditions that provide reliable feedback and "wicked" conditions that give incomplete or misleading feedback (Hogarth

[59] According to Simon, analysis involves continuous, systematic thinking over a significant period. Intuition, on the other hand, is sometimes called a hunch or professional judgment and reflects less deliberate reasoning (Prietula and Simon 1989: 122).

[60] According to Hogarth, experts learn how to counter the short-term limitations that arise in memory and how to break down information more effectively. In this way, they can have different ways of problem-solving (Hogarth 2014).

2001: 89). According to Hogarth (2014), the quality of an intuition largely depends on whether it was acquired in good or bad environments (p.71). In good learning environments, individual get valid feedback that allows their latent systems to reach correct answers. Therefore, this feedback will adequately support the intuitive thinking possible in the future. In addition, since the feedback received in bad learning environments is incomplete or misleading, the person can learn to trust the wrong answers (Quirk 2006: 49; Hogarth 2014: 71-72). This situation reveals the problem of how reliable a concept intuition can be.[61]

This is the second issue Hogarth focuses on; questionable reliability and advantages-disadvantages of intuitive thinking. According to him, it can be argued that the implicit system (tacit) is a complex system open to prejudices as the reason for the questioned reliability because Hogarth considers heuristic responses as outputs of the implicit system. However, the problem may be in the deliberate system (deliberate process) other than the implicit system. One can bypass the proper rules to cope with the task facing him (Hogarth 2014: 70), because intuitive decisions contain very little conscious deliberation in their structure (Hogarth 2001: 37).

In that context, Hogarth shows the connections between the implicit and deliberate systems with a diagram (Figure 4.1). In the first case, information about the stimulus is recorded for possible future use without effort, intent, and conscious awareness. The stored data is recallable for future tasks. In the latter case, actions begin to appear automatically, and the person becomes aware of this only after the action has taken place. A general example of this is the startle heard at a loud sound. In the third case, deliberate actions come to the fore. People consciously use this deliberate system to orient to stimuli and produce specific actions. The solution of an analytical puzzle is an example of such a mode (Hogarth 2001: 128).

[61] This issue has profoundly influenced many behavioral economists such as Daniel Kahneman and Gary Klein.

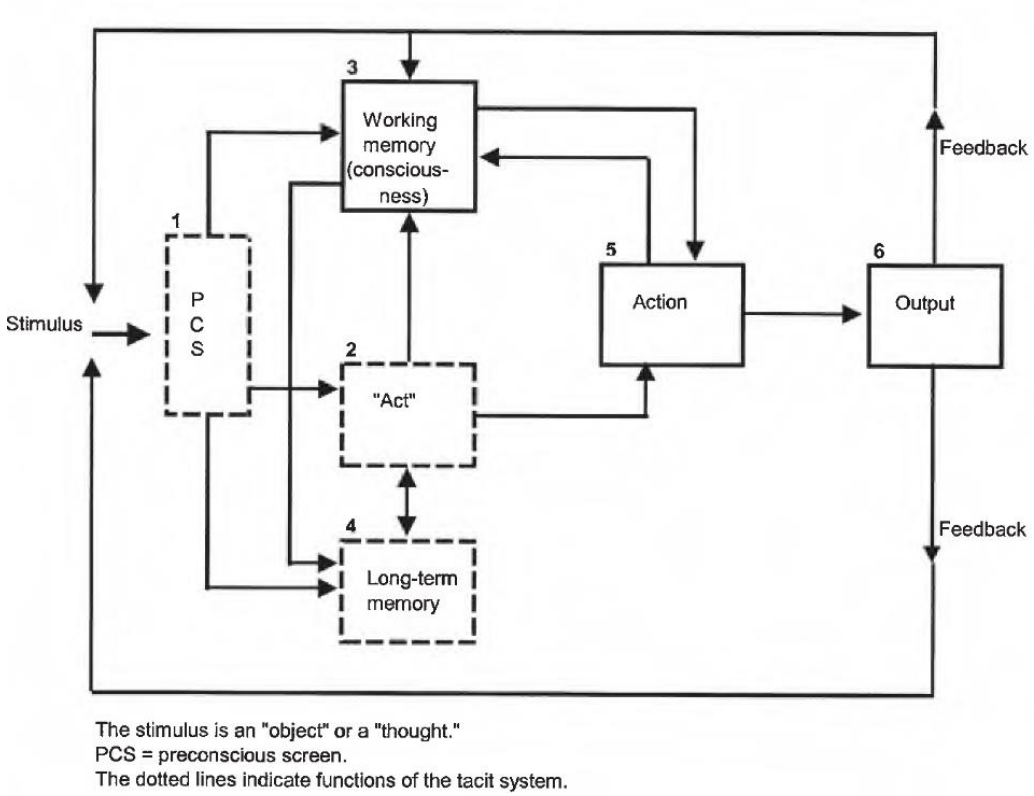

Figure 4.1. The deliberate and tacit systems

(Source: Hogarth, 2001)

Hogarth, together with Einhorn, considers these decision-making processes under two different dimensions. According to Hogarth and Einhorn (1987), "Every decision is the outcome of a complex process that usually has two different kinds of thinking: looking backward to understand the past and looking forward to predict the future" (p.66). Looking backward has a relation mainly with intuition, and based on research and diagnosis. This way of thinking requires making connections between events, investigating the cause-effect relationship, and finding theories that can help make future predictions. Therefore, this process is closely related to the person's expertise and experience. On the other hand, thinking forward is based on some mathematical formulation rather than intuition. The decision-maker has to compile a set of variables, analyze these variables, and then make a prediction based on the results he/she gets (Einhorn and Hogarth 1987: 134).

Such decisions, often made quickly, presuppose multiple experiences of complex elements (Quirk 2006: 39). This is one of the critical issues that journalist/author Malcolm Gladwell focused on. According to Gladwell (2005), the "adaptive unconscious" does a good job of guarding as against danger, identifying specific goals, and initiating

sophisticated and efficient action based on those goals (p.12). In such activities, some previous experiences of the person come into play, and he states that the person thinks through these experiences (Gladwell 2005: 9). With this unconscious thinking, a person can develop a theory and bring together some patterns and arrangements at any decision-making point. According to Gladwell, this is precisely how the act of learning works.

The part of the brain that jumps to conclusions without wasting time is called the "adaptive unconscious". However, the harmonious subconscious mentioned here is not a dark area defined by Sigmund Freud, which cannot be thought of consciously and where disturbing desires and memories are stored. Instead, Gladwell likens the adaptive unconscious to a giant computer into which much information is quickly and silently entered to perform the human mind's function (Gladwell 2005: 11).[62] He defines how this subconscious mind works in the face of events as the "thin-slicing theory" (Gladwell 2005: 33). In other words, Gladwell thinks that this rapid process depends on thin slices of an individual's experience (Gladwell 2005: 49).

In his book, Blink (2005), Gladwell published approximately 25 scientific studies spread over 250 pages to confirm these and similar hypotheses (Hogarth and Schoemaker 2005: 305). One of these case studies is the study conducted at the University of Iowa. The researchers gave people the task of choosing one card from two red and two blue decks. Red decks are marked as high wins and high losses. Blue cards, on the other hand, result in moderate wins or minimal penalties. In the long run, the game can only be won by choosing blue cards.

In this study the researchers found that players developed a hunch about the average 50th card they choose. At that point, they had to get to the 80th card selection to realize that they could only win with blue decks. However, what is interesting is that some adverse physiological effects such as stress and excessive sweating were observed after about the 10th card selected from the red decks. This and similar physiological reactions caused the player to turn to the blue decks unconsciously. The foresight obtained with the 50th card and the precise information obtained with the 80th card showed itself unconsciously on the 10th card 400% earlier. At that point, Gladwell (2005) suggests

[62] According to Wilson (2004), the adaptive unconscious is very good at understanding its environment and alerting people to danger (p.6-7).

"decisions made very quickly can be every bit as good as decisions made cautiously and deliberately" (p.9). [63]

In addition to this study, which contributes to the reliability of intuition, Gladwell also states that such intuitive instincts may not always be correct (Gladwell 2005: 14). This is one of the controversial features of the concept, as stated by Hogarth also. Another controversial feature of intuition is that it has a fragile structure. Jonathan Schooler, a psychologist, thinks that intuitive abilities can be undermined when one begins to be considerate of any process (Gladwell 2005: 121-122). In such a case, fluency is lost from then on. Gladwell supports Schooler's view. According to him, humans can memorize any face thanks to their intuitive abilities; one can solve a riddle with lightning speed. However, according to Gladwell, all of these abilities that Schooler talks about are extremely fragile. Intuition is more like a flickering candle that can be extinguished quickly rather than a lightbulb with a flash (Gladwell 2005: 122).

Another researcher looked into the role of intuition is Mark Quirk. However, Quirk deals with this on a metacognitive level. According to him, intuitions can be made stronger using reflection and self-assessment, two important metacognitive methods (Quirk 2006a: xvii).

Quirk brought the importance of intuition to the fore with a series of studies in the medical field. One of them is a series of personal interviews with faculty members from UMMS. In one of these interviews, the doctor describes a child who came with the complaint of abdominal pain. Although the doctor's two-year pediatric resident and even the doctor thought the child was okay due to the examination, the doctor said he thought he should be worried about something. Based on this inner feeling, the child who was sent to the emergency room with a sudden decision turned out to have appendicitis[64] (Quirk 2006c: 37).

Recent studies in clinical medicine have highlighted the critical role of intuition in medical decision-making (Crandall and Getchell-Reiter 1993). Trisha Greenhalgh, a GP, notes that few doctors argue that intuition plays a significant role in their practice. According to her, although the concept on which little research has been done does not have a clear definition, six different elements of intuition can be mentioned in clinical

[63] According to Quirk (2006), this card game study by Gladwell shows a special relationship between intuition and metacognition (p.38).
[64] The inference that Quirk made as a result of this personal interview is fascinating. According to him, intuition often contradicts the observed reality, as this interview shows (Quirk 2006c: 38). Therefore, acting on intuition requires a series of courage.

medicine. Greenhalgh (2002) lists these features of intuition as: “1) rapid, unconscious process, 2) context-sensitive, 3) comes with practice, 4) involves selective attention to small details, 5) cannot be reduced to cause-and-effect logic (i.e., B happened because of A), and 6) addresses, integrates, and makes sense of, multiple complex pieces of data” (p.396).

Based on these features determined by intuition, Greenhalgh presents an analogy regarding the essence of the concept. According to her, Sir Arthur Conan Doyle's fictional character Sherlock Holmes’ reasoning strategy, which is based on one of his medical teachers, is what intuition is. In one of the first Sherlock Holmes novels, Holmes' memoirs describe a complex way of solving a problem. He states that he has solved a confusing and complex problem without being aware of the intermediate steps created by the series of thoughts that pass quickly in his mind depending on his long habits based on the past (Greenhalgh 2002: 396).

Although many theorists have handled the theory of dual thought, it has also come to the forefront with the work of history professor Kenneth Hammond (Hogarth 2001: 7). According to Hammond, there are two types of thinking, analytical and intuitive. Nevertheless, the reasoning is not just an analytical or just an intuitive process. At that point, Hammond (1996) states cognitive activity “can be ordered in relation to one another on a continuum that is identified by intuitive cognition at one pole and analytical cognition at the other” (p.147).

In the 20th century, the intuition was developed by Carl Gustav Jung, Edward De Bono, Seymour Epstein, and Gary Klein. Jung (2014) highlights “intuition, as I conceive it, is one the basic functions of the psyche; namely, perception of the possibilities inherent in a situation” (p.141). At that point, the primary function of intuition as an unconscious process is to convey perceptions that cannot be conveyed by other functions or relations between objects. Therefore, intuition allows the perception of the relationship between things (Hardman 2021: 2). For him, intuition means “perception via the unconscious” (Cambray and Carter 2004: 89). In other words, intuitions mediate perceptions in unconscious ways.

The psychological types put forward by Jung form the basis of the Myers-Briggs Type Indicator, widely used in personality measurements. In his book Psychological Types, Jung (1971) states that intuition is a psychological function in every human being and reflects personality types (p.152). In general, there are two different views on the intuitive ability of people. The first view is that intuition is a phenomenon that can be

found in everyone (Vaughan 1979: 9). According to this view, a person is either born predisposed to intuitive decision-making or develops it in childhood. Once established, such a trait does not change throughout life like other personality traits (Behling and Eckel 1991: 48). The other view is that some people may not have intuitive personality traits. Jung's work on personality traits defends this idea.

Jung collected the spiritual functions in four parts in his book: 1) Thinking, 2) Feeling, 3) Sensation, and 4) Intuition. Jung states that although all four role exists included humans, one of them often predominates, and this situation varies according to the individual's social, mental, and cultural level. These four functions defined by Jung ensure that consciousness is reduced to the scale of experience. While the senses make the person aware of the existence of something, thought tells the person what that thing is. However, feeling informs whether this thing is good or bad for the person. Intuition makes it possible to realize where this thing came from and where it is going. Each of the four functional personality types can be “introvert” or “extroverted” (Jung 1971: 6-7). Thus, Jung combined four functions and two attitudes to arrive at eight different psychological types.

The "extroverted intuitive type" and the "introverted intuitive type" are two main intuitive types. Extroverted intuition creates new possibilities, synthesizes abstract ideas, and makes connections in the external environment. However, it uses the intuitive part of the brain when a decision must be made without knowing all the facts. They like to look at a problem from all angles and see different perspectives (Snowden 2010: 149). Entrepreneurs, journalists, fashion designers, and business people can be shown as examples to these people. On the other hand, introverted intuition personality types build a framework for how the world works based on detailed and abstract analyses of past and current events. These people are primarily interested in dreams and religious enlightenments in their inner world and try to interpret what happens in their outer world within the framework of these. Many mediums, mystics, and poets belong to this group (Snowden 2010: 150).

Edward De Bono, a psychologist, distinguishes the concepts of intuition and insight in his book “The Thinking Technique with the Six Hats”[65] (1985). For him, insight is a sudden realization, as a mathematician suddenly realizes that something can be done more superficially (de Bono 1999: 56). In addition, he sees intuition as mental tools; It is

[65] The basis of the Six-Hat Thinking Technique is that by wearing hats of different colors, symbolizing six different looks, one puts forward his thoughts and develops his creativity (de Bono 1999).

separate from logic and judgment. However, people can develop it through education and practice (Jennings 1999: 44). According to him, the concept of intuition has two different meanings. De Bono states that both are correct, but when considered in terms of the functioning of the brain, these two meanings are entirely different (de Bono 1985: 56).

The first is that intuition indicates a sudden realization. In this sense, it describes the sudden perception of something perceived in one way. As a result of such perception transitions, a creative concept, a scientific discovery, or a mathematical breakthrough may emerge. The second expansion is quickly expressing the concept of grasping or understanding an event. In this sense, intuition results from a complex decision-making mechanism based on experience (de Bono 1999: s.56-57). It is probably impossible to explain, or even put into words, how we make these decisions (de Bono 1983). Intuition is needed a substantial amount of knowledge and experience in both senses that de Bono puts forward.

Another psychologist, Seymour Epstein, defines intuition as something learned unconsciously, like Greenhalgh. However, according to him, this situation can sometimes be beneficial and sometimes misleading. In this context, Epstein developed a "Cognitive-experiential self-theory". He named one mode of this test as "experiential" and defined the other mode as "rational".[66] While the rational system is an abstract system that takes effort, the experiential system is automatic. Emotions and intuitions are the primary guiding elements of the experiential system. Therefore, information is processed quickly, effortlessly, and efficiently. That system's generalization and abstraction ability are relatively high (Epstein 1994: 715). In particular, Epstein was inspired by Tversky and Kahneman's definitions of heuristics and biases in his tests on this dual-processes model (Hogarth 2001: 32).

Some theorists consider the concept of intuition in decision-making approaches as a concept intertwined with expertise rather than a metaphysical and mystical feeling. According to Dreyfus and Dreyfus (1986), no rule can provide the information that an expert's experience provides on the actual results and feedback on the thousands of problems faced (p.108). In this context, the natural decision-making approach comes to the fore. When occupational groups such as the Fire Brigade and the police were examined in the NDM approach, it was seen impossible to explain the findings with

[66] However, Epstein did not claim that people like Hammond reasoned only in an experimental or purely rational mode. Thus, a reasoning process can be involved in two modes, and reasoning can begin with the experiential mode and continue with the rational mode (Hogarth 2001: 33).

classical approaches (Polič 2009: 82). Until natural decision-making studies were conducted, researchers working on decision-making examined the decision event, a single part of decision-making.

Natural decision-making mainly refers to limited time, high stress, and limited information (Bryant 2002). Within the scope of the approaches which investigate decision-making in natural settings, intuition is a process that can be explained. In that intuitive process, the inputs are processed automatically and unconsciously. The output at the end of the process is the feeling that forms the basis for reasoning and decision-making (Plessner, Betsch, and Betsch 2011: 232).

Psychologist Gary Klein, one of the most critical advocates of the Natural Decision-Making approach, associates intuition with experience and stated that intuition allows for recognizing the situation (making judgments) and the necessary reaction (making decisions) (Klein 2003: xvi). For example, as a result of examining the accidents on pilots over 14 years, the researchers found that 38% of them were caused by pilot error, and pilot error decreased as age and flight time experience increased (Li et al. 2001: 58).

In this context, Klein introduced the "recognition-primed decision" (RPD) model (Klein 1993) (Figure 4.2). The approach generally describes how individual can make decent decisions without comparison. With this model, Klein (1993) argued that the analytic approach emphasized would not be valid for environments that are dynamically developing, under time pressure, uncertain, or not well defined (p.142). In this approach, decisions are based on recognizing the similarities between the current situation and a situation that has been experienced before (Klein 2008: 459). At that point, identification is the process of matching the situation to be decided with similar situations in the mental database.

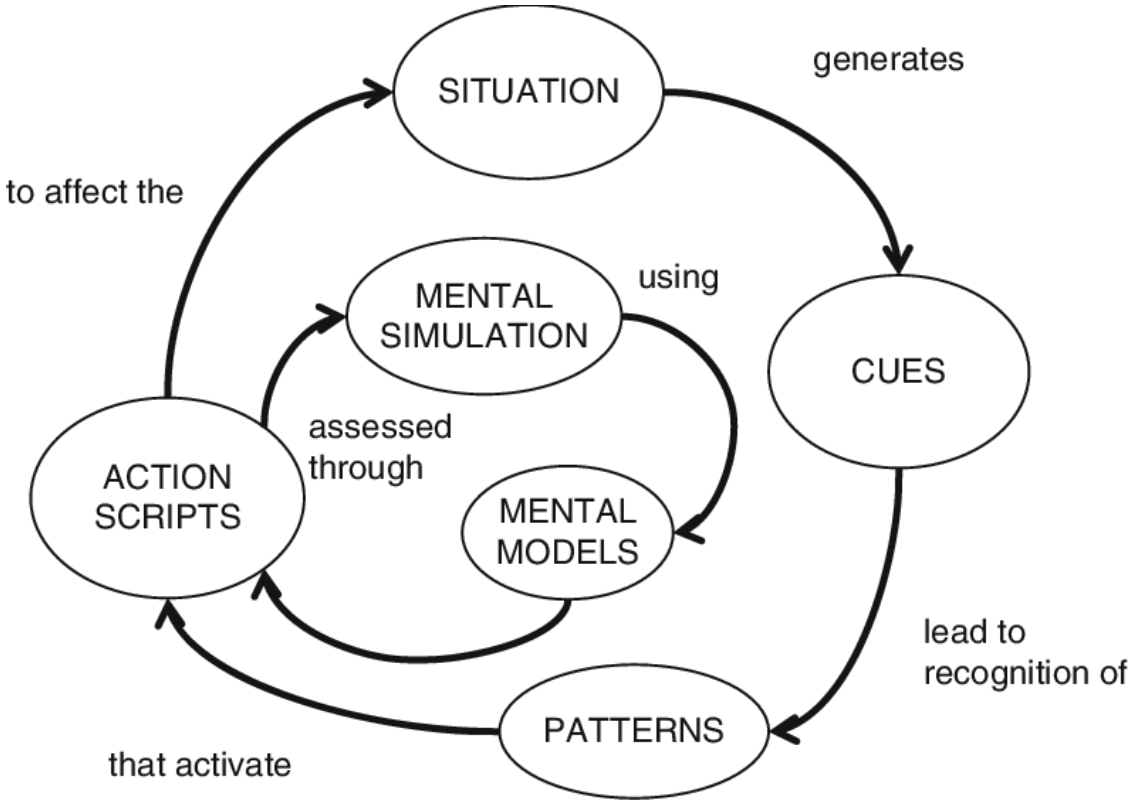

Figure 4.2. A RPD model schema, adapted from Klein

(Source: Klein, 2009: 90)

Klein also states that the model he created is not just a simple "pattern-matching" process. However, by applying mental simulation of the possible action style they have reached as a result of the matching, they evaluated how it would yield under the current situation. As a result, he stated that the model he created combines intuitive and analytical approaches (Klein 2008: 458).

One of Klein's types of research on decision-making behaviors, he found that rational models are used only between 5% and 10% in decisions defined as critical processes (Klein 2000: 169). There is an example of firefighting that Klein frequently mentions in this context. As a result of the fire in a house whose kitchen was on fire, firefighters came to the incident. After the team started spraying the kitchen with water, their chef gave the order that he had to get out of there without even realizing the reason. The floor of the house collapsed immediately after the firefighters fled the house. The chief stated that he noticed after the incident that the fire continued in an extraordinary silence and that his ears were strangely warm. By combining these and some similar traces, a sixth sense of danger was triggered in the chief's mind. Even though he had no idea what the problem was, he understood that something was wrong, thanks to these

impressions. In the end, it was revealed that the actual place of the fire was not in the kitchen but in the basement under the floor where the firefighters were standing. Thanks to the experiences he had gained until that day, the heated air and ground in the basement gave the chief a kind of danger warning and helped him take action immediately (Kahneman 2015: 275-276).

In their study conducted with a semi-structured interview technique in 1986, Klein, Calderwood, and Clinton realized that firefighters did not produce alternatives but instead put the first option that came to mind into practice (Klein, Calderwood, and Clinton-Cirocco 1986: 14). The foundation of the recognition-based approach, one of the essential components of the natural decision-making mechanism approach, has been laid, with the firefighters realizing that the first solution that comes to their mind in the event of a fire is the most helpful (Klein and Klinger 1991). Klein stated that the most critical issue in the recognition-primed decision model is that the decision-maker can describe the situation (Klein 1999: 33).[67] According to this model, individuals working in the fire department do not consider alternatives when they have to decide and do not weigh the advantages or disadvantages of different possibilities. Firefighters recognize what type of fire is in line with their experiences, classify the situation and act accordingly (Noble 1993: 139-140).

The concept of economy, which came to the fore with Adam Smith, led to the emergence of decision-making approaches. It is seen that the diversity of these approaches has increased in the period starting from Simon to the present day. Sometimes it included views that proceeded in a rational framework, and sometimes abstract concepts such as intuition. Such thoughts, which put the human being at the center, are crucial inputs in terms of the content of the concept of intuition in architecture.

The most notable of these entries is dual-process. In this decision-making model, which is differentiated into analytical and intuitive thinking, automatic and fast intuitive decisions are examined against rational decisions that require long-term thinking. Such intuitive decisions have been described as thoughts that arise spontaneously without effort. The origin of such a decision-making style has been explained in different terms by different thinkers: expertise, experience, knowledge, and subconscious are some of them.

[67] According to Klein, it is one of the bases for intuition Notion: recognizing things without knowing how we do the recognizing (Klein 1999: 33)

Intuitive thinking can be seen as momentary thoughts passing through the designer's mind during an architectural design. The subject of "expertise", which researchers such as Simon, Hogarth and Quirk focus on, opens a critical door to the scope of the thesis. Is there a difference between a non-architect and an architect in terms of the act of design? Undoubtedly, it cannot be easily denied that such a difference can exist. An automatic or rational decision to emerge from a repository of data that accumulates over time, that stratifies as it accumulates, will be deeper than a mind without knowledge or expertise.

However, the close relationship of architecture with many disciplines and daily life makes the relationship between intuition and experiences a researchable subject. The difference between expertise and experience has to do with the subject matter of the experience. Here, expertise is the knowledge gained through the act of architecture, while the experience spreads over a wide area, including the most modest details of daily life. All kinds of knowledge gained through experience can be used over and over again in different types of knowledge in different layers in an intuitive way. This is also true in the architectural design process. However, considering the way the mind works, awareness is minimal in such a detailed way of thinking that happens automatically and quickly.

4.2. The Term of Intuition within Behavioral Economics

By the middle of the 20th century, developments in psychology and other branches of science dealing with individual decision-making began to affect economics more closely. Economics is the effort to meet unlimited human needs with limited resources. However, neoclassical economics is the dominant economic trend in the 21st-century economics.

Neo-classical economics accepts that when it is necessary to make a choice, to be rational requires the evaluation of all options and choosing the option that maximizes the benefit. According to neo-classical economics, a rational individual is an individual who can make a cost-benefit analysis and aims to maximize utility. In other words, mainstream economics has constructed the economic individual as a personality with a simple structure whose behavior is easy to predict and suitable for mathematical modeling.

Even though many economic thinkers, especially Smith and Bentham, have examined the effect of preferences and beliefs on economic decisions, the relationship between psychology and economics has been neglected since Neo-classical economic

thought began the dominant approach in economics (Frey and Stutzer 2001: 5). The discipline of economics, established before psychology, was seen as a sub-branch of moral philosophy in the 18th century and started to rise with the emergence of physiology in the 19th century.

Under the leadership of Herbert Simon[68], the institutional construction of behavioral economics started with the economists' analysis taking into account human psychology. "Behavioral economics" is a line of action that generates a theoretical perspective and put up one think better while making better predictions in field events. An economic analysis is depending on psychological bases that are faith in its core and increase reality (Camerer and Loewenstein 2003: 2). According to Katona and Harris (1978), "behavioral economists study the behavior of people by analyzing the processes of spending, saving, investing, price-setting, including such psychological factors influencing behavior as people's motives, attitudes, and expectations" (p.14).

While according to Neo-classical economics people make decisions based on utility maximization, behavioral economics argues that people do not act according to utility maximization. On the contrary, they make decisions based heavily on biases and cognitive shortcuts. However, unlike neoclassical economics, behavioral economics tends to systematically make erroneous decisions instead of people with rational decision-making abilities. This approach proposes a model of a person under the influence of framing, takes mental shortcuts, acts prejudiced, and experiences deviations from utility maximization as a result.

Decision-making behaviors are essential in the economic literature. The "expected value" theory was first put forward by mathematicians Daniel Bernoulli and later developed by mathematicians John von Neumann and economist Oskar Morgenstern. With these developments, this theory has become a standard tool in economic theory. Later psychologist Daniel Kahneman and Amos Tversky developed the expectancy theory.

[68] Herbert Simon, Amos Tversky, and Daniel Kahneman have stated that the strong rationality assumptions of neo-classical economics are invalid. At this point, they stated that people are in many cognitive biases (Frey and Stutzer 2001: 5-6)

4.2.1. Daniel Kahneman and Heuristics and Biases

It is possible to count Kahneman and Tversky as the essential names of the recent period in Behavioral Economics. By 1974, Kahneman and Tversky's article "Judgment under Uncertainty: Heuristics and Biases" was published in Science Magazine. In 1979, Kahneman and Tversky's "Prospect Theory: An Analysis of Decision under Risk" was published in *Econometrica*. With these two critical studies, a new era has begun in behavioral economics.

Kahneman and Tversky set out to analyze the rationality assumption. Then instead of producing a new alternative, they included the deviations from the rationality assumption, which they accepted as a reference point, into the analysis and worked on models from this point of view. With his studies, Kahneman revealed the mistakes made by the cognitive system of humans (cognitive bias). Accordingly, many people can reason in a way that causes them to draw erroneous conclusions when making connections between events.

"Cognitive reflection" refers to the ability of individuals to resist the illusion of giving the first answer that comes to mind (Frederick 2005: 35). In other words, it is the determination of whether the individual reacts instinctively or by thinking in a situation where he has to reason to find the correct answer by avoiding instinctively turning to an adverse reaction. Cognitive reflection is explored through "Dual-process theory". The Dual-process theory was put forward by the American psychologist William James. In that theory one of the processes in question is expressed unconsciously or automatically implicitly, and the other is consciously or controllably expressed openly (Baars 1986: 34).

Kahneman is another proponent of this view. According to him, the human brain can think in two different ways, System-1 and System-2. System-1 provides a quick conclusion based on past experiences and one's assumptions in the current situation, and chooses a response.[69] The selection rules here are wise (Kahneman 2015: 95). System-2, on the other hand, describes a deeper thinking system in which the brain thinks in more detail and slows down a bit to understand cause and effect relationships. It is possible to reach more accurate results with this system but thinking like this is more difficult due to the complex structure of the system. Therefore, while Kahneman defines System-1 as a

[69] However, when recent experiences on the subject do not come to mind, more distant memories become decisive (Kahneman 2015: 95)

model where intuitive and instinctive decisions are made, he states that System-2 paves the way for judicial decisions (Kahneman 2015: 26-30). [70]

When the effort spent while using the native language is compared with the effort spent using a different language, the distinction between System-1 and System-2 emerges. System-1 is active while using the native language without making any effort, and System-2 for another languages. Therefore System-2 is much slower than System-1, so when a quick decision has to be made, System-1 usually dominates. When people face risks and time constraints, they do not make decisions based on probabilities and mathematical equations. Instead, they use mental shortcuts that exaggerate their probability of loss as the basis for their choices (Thaler and Sunstein 2009: 23-25). On the other hand, System-1 has biases and errors that can lead to irrational decision-making. Another issue related to System-1 is the cognitive comfort issue in which System-1 determines whether System-2 is needed for any situation (Kahneman 2015: 71-72). Tension, difficulty, and stress conditions reduce individuals' cognitive tension and reduce errors arising from cognitive comfort. (Kahneman 2015: 78).

Brain experts and psychologists think that the activities of System-1, which is an automatic system, are related to the oldest parts of the brain. Thanks to the fast and automatic feature of System-1, for instance people bend over unexpectedly when the ball hits them, get worried when the plane goes into turbulence and shakes, or smile when they see a beautiful kitten. In summary, the "gut reaction" of the person for System-1 and the “conscious thought” for System-2 (Thaler and Sunstein 2009: 21).

Daniel Kahneman and Amos Tversky focuses on three main research area. Firstly, Kahneman and Tversky examined subjective probabilistic shortcuts and cognitive biases, that effectively influence people's decision-making under uncertainty (Tversky and Kahneman 1974). Secondly, they developed the prospect theory and showed the failures of the expected utility theory, stating that people's tastes, choices, and decision-making under risk, depending on the status quo and some reference points (Kahneman and Tversky 1979: 288). Finally, Tversky and Kahneman investigated the framing effect and showed that the structure of the problem affects human choice (Kahneman 2003b: 1449). Later, Kahneman and Tversky's numerous studies on these issues, together or separately, pioneered the behavioral economics studies of many economists. Especially after

[70] According to Kahneman and Tversky, reaching conclusions based on limited evidence is crucial for understanding intuitive thinking. They describe this as “What you see is all there is” (Kahneman 2015: 102).

cognitive psychologist Daniel Kahneman won the Nobel Prize in 2002, studies on behavioral economics intensified (Lewis et al. 2009: 432). [71]

According to Kahneman, one of the important names of behavioral economics, human behavior is not always optimal. Especially in uncertain and risky environments, human behavior can be irrational and non-optimal results can occur. However, in the Neo-classical theory, human behavior is predictable and has a systematic structure. On the other hand, the theory put forward by the studies of Tversky and Kahneman is the "prospect theory", which argues that individuals do not always act rationally while making decisions (Kahneman and Tversky 1979), and that they make decisions with intuitive methods.

As noted, traditional theories suggest that consumers think carefully about decisions, use all relevant information, and apply a systematic action considering all the consequences. However, sometimes people cannot implement some careful decision-making strategies when their motivation is low, or their conditions are not suitable. Due to the cost of time and effort in daily life, it is impossible to examine and analyze every decision in detail. In addition, behavioral decisions can sometimes be based on cognitive biases due to the limited capacity to store information for a short time, the desire to reduce the cost of information collection, or the limitations of motivation or ability to analyze cognitively (Fiske and Taylor 2013: 178-179).

In other words, individuals act intuitively and resort to various heuristic[72] processes under uncertainty by trying to reduce the anxiety of decision-makers arising from uncertainty (Levin, Baggerman, and Gaeth 1991). Heuristic processes are cognitive fallacies that enable quick decision-making that help consumers simplify their decision-making tasks; those choices depend on the formulation of the problem, context, and elicitation method (Tversky and Kahneman 1992: 317). As a result of a series of experiments conducted by Daniel Kahneman and Amos Tversky, it is seen that people miscalculate the probabilities due to these cognitive errors when they have to make simple financial choices.[73] One of these cognitive misconceptions is the “Framing effect”.

Framing effects can be defined as subtle changes that occur due to the perception and interpretation of an event in a way that creates a specific understanding of

[71] Although interest in Behavioral Economics has increased after Kahneman, behavioral approaches have an old history.
[72] Heuristics are mental shortcuts used in decision-making or problem-solving processes (Kahneman 2015: 12). The word has similar root as *eureka* (I found) (Kahneman 2015: 115).
[73] See for experiments “Thinking Fast and Slow” by Daniel Kahneman.

individuals[74] (Entman 1991: 7). This effect reflects how individuals give different answers to the same question or options, depending on how the problems are presented (Kahneman 2015: 426-427). It is seen that the mental processes from childhood reveal different mental perceptions in individuals (McCaffery and Baron 2006: 108). In that context, people form different frames in their minds due to the different ways they are presented with the same question. Experiments with word order manipulation have shown that frame selection can significantly affect subjects' perception of risk (Kahneman 2003b: 456).

Another experiment that Kahneman and Tversky conducted under the "Empty Intuitions" is referred to as the "Asian disease" problem (Kahneman 2015: 425). The participants in the experiment were told that they were faced with an unusual Asian disease in the USA and that one of the two programs should be chosen:

Problem 1:

Program A: 200 people will be saved for sure.

Program B: There is a 1/3 probability that 600 people will be saved and a 2/3 probability that no one will be saved.

Of the 152 participants in this experiment, 72% chose program A. The same problem was presented differently this time, and the participants were asked which program they would choose to adopt:

Problem 2:

Program A': 400 people will die for sure.

Program B': 1/3 probability that no one will die and 2/3 probability that 600 people will die (Kahneman 2015: 425-426).

This time, 78% of the participants, consisting of 155 people, chose the program B'. Since programs A and A', B and B' express the same things, the rational individual's choices do not change, so if the individual chooses program A in the first problem, he or she should also choose the program A' in the second problem. This effect, which they

[74] In other words, the framing effect can be expressed as the effect of the essential qualities of a message by making specific ideas suitable for the reader/audience, leading these ideas to be mobilized and used in evaluations (Price, Tewksbury, and Powers 1997: 486).

call the framing effect, states that individuals can change their preferences when making decisions in situations such as presenting options positively or negatively and emphasizing gains or losses (Tversky and Kahneman 1988: 176).

Another cognitive misconception is the “availability” effect (Tversky and Kahneman 1974: 1127; Fiske and Taylor 1991: 384). While making decisions, individuals tend to make decisions intuitively through the information that comes to their minds more easily. Frequent exposure to some information makes this information unforgettable for the individual and causes it to be remembered frequently. Individuals tend to underestimate events that are easily forgotten and not frequently exposed and decide that these events are less likely to occur (Kardes, Cronley, and Cline 2014: 283). These two distinct aspects of the accessibility effect are another factor that leads to illusions in intuitive thinking.

Questioning the reliability of intuition, Kahneman has some opposing views to Klein, who puts expertise to the fore on the structure of intuitive thinking. Klein puts expertise at the center of intuitive thinking. Kahneman does not deny the importance of the know-how that expertise brings. However, he states that good results will not be obtained when professionals are overconfident due to their expertise. For Kahneman, a professional's ability to trust intuition depends on establishing a simple and coherent story. On the other hand, Klein draws attention to the importance of instincts as a data tool and presents conscious and deliberate evaluation as a prerequisite for professionals to trust their intuition (Sibony, Klein, and Kahneman 2010).

Although Kahneman and Klein had different views, they could come together on a common ground on points such as the source and subject of intuition in an article they published. Although Kahneman states that he trusts intuition less (Sibony, Klein, and Kahneman 2010), the condition for reliable intuition for Klein and Kahneman is essentially the state of the environment in which the heuristic decision is made and the state of receiving feedback. However, Klein and Kahneman (2009) summarize other common points they meet, and some of them are “1) Intuitive decisions can appear from genuine skill and also improper technic of the heuristic operations, 2) Skilled judges are generally not aware of the cues that guide them, 3) Subjective confidence is an untrustworthy trace of the validity of intuitive judgments because true experts know when they do not know. However, non-experts do not know when they do not know, 4) Relying on intuitive judgments is closely related to questioning the environment in which the decision is occurred. The judgmental person's chance to find out about the layouts of that

environment, 5) Thus, in “high-validity” settings such as medicine and firefighting, there is a stable relationship between identifiable cues and subsequent events, 6) However, validity and uncertainty are not incompatible. Some environments, such as poker and war, are highly valid and largely obscure. The ideal behaviors in that environments improvement the achievement equality, 7) To develop intuition, there must be a highly valid environment. Rapid and precise feedback must be obtained from that environment. In such an environment, expert intuition will improve in person with sufficient skills, 8) Although expertise cannot flourish in unpredictable environments, individuals can occur judgments and decisions which are sometimes prospering by coincidence; like the financial sector, 9) Expertise sometimes leads to overconfidence in non-expertise areas. Therefore, it is essential to define the boundaries of specializations, 10) In cases of low validity, the development of some algorithms that perform better than luck may be supported” (p.524-525).

4.2.2. Dan Ariely and Predictable Irrational

Another study showing individuals act irrationally than predicted in their economic and financial decisions is “Predictably Irrational – The Hidden Forces that Shape Our Decisions” (2008) by Dan Ariely. Ariely, Professor of Behavioral Economics at Duke University and Director of the MIT Future Laboratory Research Group, states that customers behave with predictable irrationality rather than irrationality (Ariely 2008: 6) and that these illogicalities also have a specific systematic. According to Ariely (2008), the human brain is not successful in finding the right choice in the face of complex options (p.8). It needs fewer choices and organizing them as well. The brain avoids making decisions in the face of excessive choice because of its limited capacity.

The results of modernism, secularism, and the sacred/secular distinction have undoubtedly changed humans' views against knowledge, truth, and moral elements. With modernism, the ultimate source of truth is the human mind, and only rational thought of this mind has dominated. However, Ariely objects to this view of the human mind as the primary source of truth. Since the mind is a function of the mind, it is impossible to be independent on its own, to create perfect objectivity, and to form a judgment of certainty. For this reason, it is unthinkable that reason is the natural source of truth.

Ariely gave many examples to support this claim, from economy to business relations, from family to chronic procrastination problems. In an example he calls the

"Zero as a Special Price", Ariely shows that people can buy unnecessary items for free, even though they do not need them. For example, people are likely to buy a bag that goes from $30 to $10. However, if the same bag has dropped from $30 to $0, that is, if it is given for free, the probability of people buying it is almost one hundred percent (Ariely 2008: 49).

This is because people think they will not lose anything when they get it for free, rather than making the wrong decision for a specific price. Brands, which are aware that people, as market customers, make decisions with this motivation, determine their advertising and sales strategies accordingly. These behaviors, which Ariely tested by doing his experiments, are intended to prove that everyday decisions are not instrumentally rational but somewhat irrational.[75]

Another concept that explains the emphasis on losses over gains is the "status quo bias". According to the status quo bias, individuals dignify the goods they own higher than the real value of those goods. This bias increases as the duration of ownership increases. Status quo bias is based on the instinct of individuals to maintain their current status (Thaler and Sunstein 2009: 12). Ariely's basketball ticket example is shown as an example of the loss aversion effect created by the ownership effect. Ariely experimented with students who bought tickets for a basketball game and those who could not. At the beginning of the experiment, he called a few of the students who bought the basketball game tickets and asked them to give a price to sell their tickets; then, he called the students who wanted to buy tickets and asked how much they could pay for the basketball game tickets. While the students who did not have the tickets were willing to pay around 170 dollars for the basketball game ticket, the students who had the tickets by waiting in line demanded an average of 2400 dollars to sell their tickets. According to the assumption of the traditional theory, students with and without tickets should look at the ticket price from the same perspective. However, in real life, individuals overestimate the property they own with the effect of ownership (Ariely 2008: 130-133).

Ariely also follows a path that supports Kahneman's views on shortcuts. Although there are practical and valuable aspects of using heuristics in decision-making, there is also an aspect where they can lead individuals to erroneous decisions in some cases. According to Ariely, shortsightedness and irrationality are very common in decision-

[75] It is seen that irrational decisions, which Ariely defines as irrational, are handled within the framework of human intuition by other decision-making researchers. In this context, these irrational decisions can be seen as indirectly or directly related to intuition.

making (Ariely 2008). Most of the brain is concerned with the sense of sight. However, just as a person falls into visual/perception mistakes, he or she cannot get rid of these mistakes when making a decision. Conversely, these misconceptions stand out as the most critical inputs that affect the intuitive way of thinking.

Expertise and experience were seen as essential tools in the concept of intuition, which was examined under decision-making approaches. Although the mind is prone to rationality, as Kahneman and Tversky stated, it can also make many automatic decisions thanks to the effectiveness of System-2. Such decisions, according to behavioral economists, may be related to both expertise and experience. This correlation may be valid in the architectural design process. It is possible that every knowledge gained from experience can play a role in shaping these automatic decisions of the architect. After all, architecture is closely related to the experiences of the architect. This argument was also supported by philosophy, art and mathematics. Every architect tries to solve every architectural problem within the framework of his/her experiences. Therefore, the role of experiences on intuition and intuitive thinking is undeniable.

However, the critical point here is the heuristics-biases issue, which Kahneman and Tversky often focus on. The definition of intuitions as automated quick decisions has begun to question the reliability of such decisions. While making a decision, the mind constitutes what the secondary parts will be in its layers. However, at this point, awareness can be said to be negligible. Therefore, it can be considered as a problem whether every decision made by the mind will be valid or not. It is not surprising that Kahneman and Tversky chose the discipline of economics in which rationality is at the forefront in order to question this situation. As a matter of fact, with their simple but effective experiments, they proved that the automatic and quick decision made by the mind to a problem that has come to the fore in a field such as mathematics can be wrong.

The critical point that separates architecture from economics is the concept of "right". In economics, there is a certainty that mathematical expressions bring. The accuracy of a simple mathematical expression like "2+2=4" is certain. However, the situation is different in architecture. In this field, there is no single truth because of its multidisciplinary, organic nature and full of propositions. Each drawn line, each measured step, or each combination of articulated masses may be valid.

However, there are some common points in the conceptual equivalent of intuitive thinking. In particular, the framing effect introduced by Kahneman and Tversky is one of them. This heuristic can also apply to architectural design, proving that an intuitive

decision can be influenced by the use of external factors, expressions, gestures, words, and even numbers. The factors that cause the framing effect can be seen as the data obtained by the architect for architecture. In an architectural design, many environmental factors such as the sunrise-sunset orientation, endemic knowledge of the land, and the prevailing wind direction can be mentioned. In addition to these, other factors such as user requests, budget optimization, material usage and regulations can be mentioned. It is obvious that the design process of an architect who does not know these data will proceed in a different line. Every decision he makes intuitively, quickly and automatically, will be limited to a framing of such data.

CHAPTER 5

CASE STUDY OF GÖN LEATHER FACTORY BY ARCHITECT NEVZAT SAYIN

The literature review on the role of intuition and intuitive thinking in the architectural design process emphasizes the different definitions and origins of the concept. It is seen that the concept, which is handled in various perspectives, is sometimes associated with expertise, sometimes with experience, and sometimes with metaphysics. This situation highlights the concept of "subjectivity" as the common point of different definitions of intuition.

Although it is possible to generalize the roles attributed to the concept that changes and evolves from subject to subject -architect to architect-, it is still critical to examine the concept of intuition through a single case study. At this point, architect Nevzat Sayın and his works were chosen as a case study. Sayın's previous writings, expressions and discourses show the importance he attaches to some intuitive tools besides rationality in the design process. Since the concept of intuition is rather abstract and incomprehensible, this was an important criterion for the selection of the case. Thus, Sayın's writings, even if he does not describe what intuition is directly, makes him a suitable case for this study.

Therefore, his approach to design, his perspective on the process, and his views on architectural experience are included in the scope of the thesis. The information obtained from the interviews with him was examined to inquire into the role of intuition in the design process. As a result of this review, answers were sought to questions such as the intuition's definition, and its origin in the context of the architectural design. It is aimed to determine the layers of intuition and intuitive thinking expressions in the architectural design process.

Architect Nevzat Sayın, born in Hatay in 1954, graduated from Ege University, Faculty of Fine Arts, Department of Architecture. After his undergraduate education, he continued with a master's degree in Social Housing (NSMH). In particular, his level of curiosity in this educational process was reinforced by the trips he made. Thanks to these trips, he started to lay the foundations of his relationship with the concept of "place".

Sayın, who started his architectural practice by establishing a master-apprentice relationship with Cengiz Bektaş, developed his architectural knowledge, construction knowledge, and sectorial knowledge during these periods. After this intense period, in his own words, he made trips to increase his knowledge and vision ("Nevzat Sayın - NSMH" n.d.). He strongly felt the state of being a part of a "place" by filling the conceptual meaning of the term in his ancient tours. In addition, Sayın, who is also interested in politics, expresses that he deals with these two seemingly different concepts on the same plane:

> […] I was standing somewhere between the antiquity that makes it meaningful to look back and the leftist politics that makes it meaningful to look forward. […][76]

This statement is a summary of his perspective on architecture. He wishes to transform the world he is in through architecture instead of politics. Therefore, for him, although architecture and politics are intertwined and are related concepts, architecture is political in an implicit or explicit sense (Damla 2018). Besides this politics, according to Sayın, architecture is closely related to philosophy, mathematics, art, history, sociology, and especially geography:

> […] Architecture and philosophy have a very close relationship. Because the discipline of architecture teaches us a way of thinking. That is why phenomenology's case of starting from experimentation rather than starting from a theory and trying to rethink what is happening all the time seems very close to me in the context of architecture. […] Apart from that, you need to know history. What happened in this land before us? As we just talked about, if you do not know Ionia, if you do not know Lycia or Phrygia, what will it be like? […] Also, I think these are the things the average person should know. As an architect, you need to know it in more detail. […] Apart from these, you need to know geography from many geographers. Let us say we live in the Mediterranean. You have to read Braudel. Where is the Mediterranean? […] if you do not know geography, I think your job is difficult. Therefore, philosophy, history, and geography are essential disciplines in architecture. […] And art. I think another field that you should know very well

[76] All quotes are from interviews conducted with N. Sayın as part of this thesis study unless otherwise noted. The quotes are translated by the author from Turkish.

> is art. […] Then mathematics. Of course, since your job is with numbers and every architectural project is an equation, we can talk about the existence of a problem in architecture, like probabilities. Somehow, you have to get out of that calculus of possibilities alive. […] Beyond that, architecture is as much about the world. For example, it has a lot to do with sociology. […] knowing where to do what and how to do; it is closely related to knowing where you are. Materials, people, and users. Architecture is a very broad discipline. [...]

Sayın conceives of design concepts as interdisciplinary, with which Simpson et al would agree. According to hem the design act is ubiquitous, and architecture is interdisciplinary (Simpson, Barton, and Celento 2008: 30). In this sense, design is influenced by many perspectives, such as professional, cultural, technological, and economic, and also is separated from each other by limitations such as fashion, textile, and industry. Although design is interdisciplinary, it develops by feeding on other disciplines as proposed by Brenner and Rodgers (Bremner and Rodgers 2013: 4). However, the scale and structure of architecture's special relationship with other areas in which it interacts are different from each other. For example, while the relationship of architecture with mathematics dates back to Ancient Egypt, its relationship with art has started to be established in the recent past.

Architect Le Corbusier highlights the relationship between architecture and art as arguing that architecture is art first and foremost. According to Auguste Perret, architecture is the art of organizing space, moreover, like Hegel, architect Frank Lloyd Wright adopted architecture as the leading art (Hasol 2013). According to Sayın, there is an undoubted relationship between architecture and art. However, unlike other disciplines, art also contains many differences in its relationship to architecture; the necessity of persuasion, the question of initiation, data related concerns, and the problem of necessity. Sayın summarizes as follows:

> […] they [artists] think very differently from us. We must be persuasive at the beginning, convincing, and explain everything. Because imagine that you are going to construct a building of 100,000 square meters, and you will tell them that this is the project they want in a projection machine; your job is difficult. There are marketing specialists, industrial engineers, cost programmers depending on the type of building, and zoning issues. Depending on everything, that group will say to you,

> "Okay, we want it". Now, this is a situation that fundamentally separates us from art. There is a definition of art that I love very much, "art is the most necessary of unnecessary things". However, architecture begins with pure necessity; something is needed. Someone will knock on your door and say, "I want this", for instance a factory, home, school, hospital. So, we always start with data. The tabletop is full of data; There is topographic data, legal data, regulations, costs, growth schedules, and a whole lot of it. Think of an artist, a blank canvas at night, no data. […] they [artists] do not need to explain why they are doing this. However, we need it, and it is not easy to explain something you do intuitively with your mind. […]

In addition, similarities of design with art cannot be denied. Design is how the information accumulated, sometimes in perception and sometimes in the spirit, is blended and transformed into an expression. However, art is the way of presenting these expressions. It is a situation that causes art to be intertwined with philosophy.

In this context, Sayın's relationship between architecture and art can be associated with one of his expressions, "completion of the scenery"[77]. In a speech titled "Olasılığın Mimarisi", he talks about how architecture progresses through possibilities while also talking about the sceneries he has completed in his mind with an artist's style. At that point, Sayın brings up a phrase of Leonardo; "When Leonardo sees a cliff, he also thinks of the bridge over it. Because to understand the gap, there is a huge difference between the presence and absence of that bridge." (Sayın 2018).

As Sayın explains his way of thinking through this expression, he multiplies his examples. He talks about a lighthouse appearing in his mind when he sees a sea of large rocks. In this context, completion of the scenery finds its place as a correlation between what has happened before and what will be done later. Sayın, who talks about the difficulty of understanding and making sense of the other if one does not exist, injects this conceptualized expression into his structures and design process (Sayın 2018). Therefore, on the ground of the significant role that he attributes to the concept of "place" in architecture, it can be mentioned that there is a vague but dazzling correlation between Sayın's expression of "completion of the scenery" in the architecture and Schelling's idea of "finality" in the philosophy of art:

[77] The original version of the expression; "Mazara Tamamlama"

> […] You have caught an interesting point. […] Well, I find it right to build something anywhere. Some people say that in some places, nothing can be done; there is no such thing for me. Because if that thing is a good thing and a meaningful thing, that tension will reveal it. You can use the self-induced or the created based on your beliefs; the tension between them is fundamental. This is so crucial to me, the completion of the scenery.
>
> For example, when driving on a forest road, I see a red wall between the trees that do not exist; not always red, sometimes red, sometimes a white wall, sometimes high, sometimes low. However, surely my mind will add something man-made there. Therefore, I want my structures to be like this; to establish a good relationship with those that were formed before me. […] I would like it to complete the scenery. […]

The artist, in our case namely the architect, is the most critical point of such an act of completion. In particular, the multifaceted character of the architecture and the tensions it has within itself cause this discipline to be shaped with different expressions on the scale of the subject. Architecture is, first of all, a discipline with commonly shared standards rather than general truths. This leads to different design approaches and different views. While the design process of any building by one group proceeds with an inductive ideology, deduction becomes an essential point for another group. Today, with different design tools and advanced technologies, architecture has changed, transformed, and developed as it transforms. However, this situation causes some problems. At this point, it can be seen that design is an endless combination of problems and solutions. The architect creates a new problem to be solved while solving another problem while designing. In this context, Sayın decomposes the act of design on the scale of the designer:

> […] I think basically there are two types of designers; a group has a solution in mind and no matter what problem you come up with, whatever they do, they put that solution there; For example, Zaha Hadid and her museum in Baku, MAXXI in Rome or the art center in Wolfsburg. It is something that belongs to a particular world of forms. There are also those who start with the problem[78]. They are prone to asking questions over and over again. […] I am close to this […]

[78] In one of his speeches, Sayın states that this situation increases the "possibilities".

At this point, Sayın sees his design act as a problem-solving action tailored according to the intricacies of each individual design situation. From this perspective, every spatial organization must harmonize with the user and accommodate their wishes and values. In this context, every space is a solution. The act of design, which turns into a problem-solving action at some point, reveals the well-defined and ill-defined problem. A well-defined problem means a well-structured problem (Simon 1973: 182). In such problems, the person has all the information he or she will need to solve the problem. This information can be listed for Kahney (1993) as follows: "information about the initial state of the problem, the goal state, the legal operators, and the operator restrictions" (p.19). At this point, "data" comes to the fore as the critical component of the architectural design process to progress through a well-defined problem. Sayın underlines that he attaches importance to the data collection phase in his design processes:

> [...] we always start with data. The desk is full of data; There is topographic data, legal data, regulations, costs, growth schedules, and a whole lot of it. […] I would like to hear all the data as much as possible in the beginning. In fact, I am pretty provocative about it. I eat with those people, go to their houses, and want to see their existing factories. If they have an example of the work, they want from me or if others have it, I want to see them as well, and I distract them with questions that do not come to their minds; I ensure that as many things as possible are on the table. I want to get as much information as I can. Then I choose from among them; but sometimes I do not use this data at all, sometimes I do. […]

Such a situation raises sub-problems within the scope of the thesis. One is whether such data can cause a "framing effect"[79] within the framework of cognitive biases. The framing effect put forward by the behavioral economists Kahneman and Tversky reveals that the individual's preferences vary according to the context in which the choice is made. That bias can create such different effects that it can create completely opposite decisions with the framework drawn when describing a situation. In other words, it is possible to

[79] The framing effect has been explained in the previous sections over the sample named "Asian Disease".

encounter interesting reactions when the same situations are presented differently.[80] Kahneman and Tversky consider the source of such initial thoughts as intuition.

Therefore, in different experiments, Kahneman and Tversky asked participants to express the first thought that came to their mind, in other words, their intuitive thoughts. If the participants were allowed to think, it is possible that the rate of different responses resulting from the distinctness in expression would decrease because the experiments were organized in the context of economics. So, the experiments are based on mathematics, and the correct answers are one and only.

However, it is undeniable that there is a plane difference between the act of architecture and the economics in which Kahneman and Tversky's experiments are conducted. Economics, closely related to mathematics, is discipline-oriented towards analytics, precision, and logic. On the other hand, while architecture is related to a field such as economics, it also spreads to a broader environment. As Sayın stated, architecture is closely related to many fields such as sociology, history, art, philosophy, and politics.

Nevertheless, the framing effect of Kahneman and Tversky can also be addressed in the discipline of architecture. As Sayın emphasized, data are critical elements of an architectural design process. Each of these data can be thought of as the actors causing the framing effect; keywords, tropes, metaphors, concepts, symbols, and visual images. The way, environment, and structure of the received data and the designer's historical background and existence may cause the data to be analyzed differently. Differently interpreted data are added to the design process as different inputs. While different design decisions emerge as a result of this articulation, the resulting product becomes characteristic in itself.

At this point, two issues come to the fore. The first is the framework that data as data creates in a design process. The received data will cause the design to develop within certain limits. The second is that the formal structure of the data and the receiving environment will create a framing effect together with the existential concern of the designer.

Stakeholders, regulations, budget, owners, users, contractors, artisans and employees, and the designer are some of the actors involved in the organic structure of the design process. This situation creates a complex design process. On the subject, Sayın

[80] It can be thought of as a manipulation effect. For example, a professionally prepared frame manipulation in advertising is difficult to understand. Even those specializing in this subject can be helpless against the framing effect.

does not deny that data can create a framing effect but states that this framing effect increases the designer's intuition. So instead of avoiding a framing effect, he prefers to go after it.

Sayın draws attention to two different distinctions of framing. The first is the framing of the process as data. Moreover, the second is the changing and transforming structure of the data on the existential plane at the scale of the subject, which may be handled as the framing effect. Both situations contribute to the possibility of architecture, increasing diversity:

> […] the more information I get about location, legal restrictions, and the user, I want it all on the table. Does this limit my thinking? I am a constraint lover, so "do whatever you want" is a phrase I do not like. […] For example, I spend at least this much time on the site. How do I get there? What is around? How is the slope? Where is the wind blowing from? Where does the sun rise? Where is the view? How can I enforce regulations? Are there slopes? Can I use them? Or will I not use it at all? Therefore, I am in favor of collecting many data, and I think this increases intuition with that condition; On the one hand, there is the existing data, and on the other hand, you yourself. For this reason, how you bring together the information you get relates to how you are. The three architects use the same information on the table for a completely different result. As I do all this, again, something starts to come to my mind from that part of what I call "creative forgetfulness"[81]. […]

In the continuation, Sayın states that the starting point of a design process is an entirely separate matter. Intuition is sometimes expressed as the first thought that comes to mind, both in complex plots and short and simple plot pieces. For example, in their experiments, Kahneman and Tversky asked the participants for the first thoughts that came to their minds. They consider such thoughts as intuitive thoughts under the name of System-1. However, explaining the formation phases of such an action is not easy. Intuition is perhaps a way of working with the mind, perhaps, as Plato said, an ability of the souls.

[81] The original version of the expression; “Yaratıcı unutkanlık”

In this context, the relationship of the first statement that comes to the fore in understanding the judgments formed in mind about any subject is at a questionable point in the structural sense. Sayın expresses his views on this matter as follows:

> […] Edward Said has a book called "Beginnings". I like it a lot. It describes the beginnings through literature, but I think it can also be carried over to architecture. […] For example, I ask myself; Where do I start this project? Because despite all these data, sometimes you can start with the "completion of the scenery". It has nothing to do with data. However, sometimes you can start with that data as if solving a math problem. […] I went over this subject a lot. There are points where first thoughts are very valid. However, there are cases where you leave any first thought in place and do something completely different. Still, I can say this; I do not think there is an intense relationship between first thought and intuition. […]

Even if the correlation of the first thought with intuition is accepted, Kahneman's cognitive bias of "accessibility" comes to the fore at this point. While making decisions, individuals tend to make decisions intuitively through the information that comes to their minds more easily. Frequent exposure to specific information makes this information unforgettable for the individual, and this unforgettable state causes that event to be remembered frequently. Likewise, information drawn deep into the mind will be more challenging to remember. Therefore, information about easily remembered events affects individuals more when making decisions. At this point, Kahneman thinks that the first information that comes to mind may mislead the individual, and this situation will reveal the reliability of intuition.

In the act of architecture, as in other acts, sometimes at the first encounter with the problem, sometimes with the place, the mind carries its first thought to understanding after a complex working style. While Sayın underlines the importance of such initial thoughts, he does not ignore that design is a long process. In this process, the first thought that comes to mind may change over time and develop as it changes. However, Sayın also states that he sometimes moved away from these first thoughts and reached other points. It may be related to the organic nature of the architectural design process. However, although he prefers to receive this data at the beginning of the design process, there are

times when it is added to the design piece by piece during the process. The reason for this situation can be shown as the multi-actor structure of architecture[82].

The importance that Sayın attaches to data analysis is closely related to such structural characteristics of the architectural act. The received data is sifted, parsed, indexed, and set aside for use at necessary points. At this point, architecture, which stands out as a problem-solving action, turns into a rational mental activity with its secondary actions. This mental activity brings together rational decisions, analytical contexts, and logical expressions.

However, as stated in chapter 4, architecture and architectural design process have begun to include some incorporeal activities within its scope today. Especially when looking at the historical development and changing adventure of the design process, this situation can be understood. Undoubtedly, the importance of the body in the Renaissance and the dominant role attributed to the senses with modernism profoundly influenced the architectural design process.

At this point, the theory of intuition, sometimes became a design tool and sometimes began to be conceptualized as the design itself. The logical limits of the mind have been set aside, and such abstract notions that cannot be explicitly expressed to human beings have begun to gain importance. Again, as mentioned in Chapter 4, many architects were affected by this change and turned their existence into effective tools in their structural decisions; Khan, who designed silence as intuitional experience, Zumthor, Pallasmaa, and Holl, who used senses, and Lynn, who surrounded their buildings with futuristic elements. In addition, intuition, which is one of the contributions of the changing world figure to the architectural design process in the recent past, is essential for Sayın; however, it stands out as a tool and a form of expression that is just as ambiguous and varies on the scale of the subject:

> […] intuition is a difficult concept to define fully. Because it is kind of vague. […] something that happens in all areas of life. I think nothing can happen without intuition. I have a definition of the subject; nothing happens without knowledge, intuition, and vision. You can define each of these as you wish. […]

[82] At the practical level, the act of architecture includes many actors; Stakeholders, owners, contractors, users, builders, and others.

In the previous sections, it was mentioned that the common denominator of the concept of intuition, especially in the context of philosophy, art, and mathematics, is subjectivity. This situation is closely related to the abstract and unpredictable structure of the concept. At that point, Sayın also mentions that the concept can have different sub-titles on the issue of subject. Therefore, the critical point within the scope of the thesis is the terms that conceptually underline the notion of intuition for Sayın:

> [...] There is a difference between the vision of a man who lives on the hills of the Himalayas and the vision of a man who has seen and lived the world in its entirety. Therefore, on the condition that they are defined in their own reality, I think there is nothing without intuition. […] How can we expect someone living in Central Asia and someone living in Central Africa to behave the same? We cannot expect him or her to sense the same things. However, if we evaluate them in their environment, we can see that they grow proportionally similarly. However, their densities vary. What is of interest to one will not be of interest to the other. […]

Intuition and intuitive thinking are at an opposite angle from rationality. While intuition has an abstract, unpredictable and organic structure, rationality is concrete, clear and systematic, like a sharply drawn frame. These two ways of thinking (dual-process) appear simultaneously in mental activities, as seen under decision-making mechanisms. Despite this coexistence, intuitive and rational decisions have different intensities in all mental activities mentioned. In this context, Sayın states that he was more prone to rational and analytical thinking rather than intuitive thinking in the early years of his professional life as follows:

> […] As both a modern and a socialist, I can say that I was brought up with a rigorous understanding of modernity. That is how I was brought up; moreover, I adopted it. For me, everything was rational and explainable; inexplicable things were not mine. It went on like this until I started building. I only believed what I could explain, I was only interested in what I could explain, I only did what I could explain, and all my attention and care was always on explaining. I strongly believe in this; it does not exist if it cannot be defined. […]

Taking different approaches, psychologists propose two fundamentally different but interacting forms of information processing. These styles are expressed with different concepts. Epstein et al. (1996) summarizes these concepts as follows: “One of them is referred to as intuitive, natural, automatic, heuristic, schematic, prototypical, narrative, implicit, imagistic-nonverbal, experiential, mythos, and first-signal system, and the other as thinking -conceptual-logical, analytical-rational, deliberative-effortful-intentional-systematic, explicit, extensional, verbal, logos, and second-signal system” (p.390).

The practice of architecture includes many inputs at the theoretical and practical levels. Among these, analytical inputs were more readily accepted because the mind explained them and provided provability in finding the “true”. At this point, the fact that Sayın approached the architectural design process and even the architectural act in his early years with such a rational understanding can be discussed through this aspect of architecture. With that, Sayın's upbringing, historical background, and cultural context have led him to focus on explainable issues.

However, as Epstein states, different from rational thinking styles, non-rational thinking can also be mentioned; it is associated with many concepts. This form, which is sometimes based on intuition, is in a more inexplicable position than rationality. These two mechanisms, defined as a dual process by researchers examining decision-making mechanisms, often work together (Hogarth 2001: 33). However, the intensities of thought structures in the dual system are different during any mental activity. For this reason, Sayın's closeness to rationality in his early years may not mean that he was entirely rational in his thinking. From that perspective, Sayın states that he realized his rational decisions could also be intuitive through reflecting back on his design decisions of the Gön Leather Factory Building:

> […] [stating of being close to rational] It continued until I made the first project. After I created my first building and it became available, it is like an end-to-end reading; the following question arose “Why did I build such a structure?”, “Where did this building come from?”. Okay, laws, regulations, constructability, budget, floor height, and width; these could be explained. However, this building did not have to be in this form due to these data. Why can't I give a full explanation of this? I forced myself and started reading that building in such a strange way. This is an

exciting moment. Years ago, maybe 30 years ago, I described this building as "The Untold"[83] in a design article. […]

While this questioning creates a distance between Sayın and his building, this distance reveals the role of some irrational definitions in the design process of Gön-1. At the same time, Sayın describes this self-reflection as a turning point in his way of thinking and summarizes it as the first moment he encounters intuition. He talks about the moment of starting the design of Gön Leather Factory-2 (Figure 5.1) as a structure to be articulated to Gön Leather Factory-1 (Figure 5.2). Gön Leather Factory-1 is four-story building. There are some features of design as follows: depending on the production capacity, the locations of the spaces can be easily changed, free regular layout to accommodate the growth that may occur over time, in a scratchy environment; therefore, no environmental data could be used, only the entrance façade and long side do not face the wind ("Nevzat Sayın - NSMH" n.d.).

Figure 5.1. The front façade of Gön Leather Factory-1
(Source: "Nevzat Sayın - NSMH", 2022)

[83] The original version; "Anlatılamayan"

Figure 5.2. The view of Gön Leather Factory-2
(Source: “Nevzat Sayın - NSMH”, 2022)

The last sketches of the Gön-1 and Gön-2 leather factory provide information about the plans and facades of the buildings (Figure 5.3). The first building was designed as the entrance structure to the complex. The secondary structure behind it consists of workshops. It is seen that Sayın has designed the façade of the building as still as possible to protect it from the wind, as he mentioned. Moreover, the ground plan is created with orthogonal grids. However, these sketches were made after some design criteria were given.

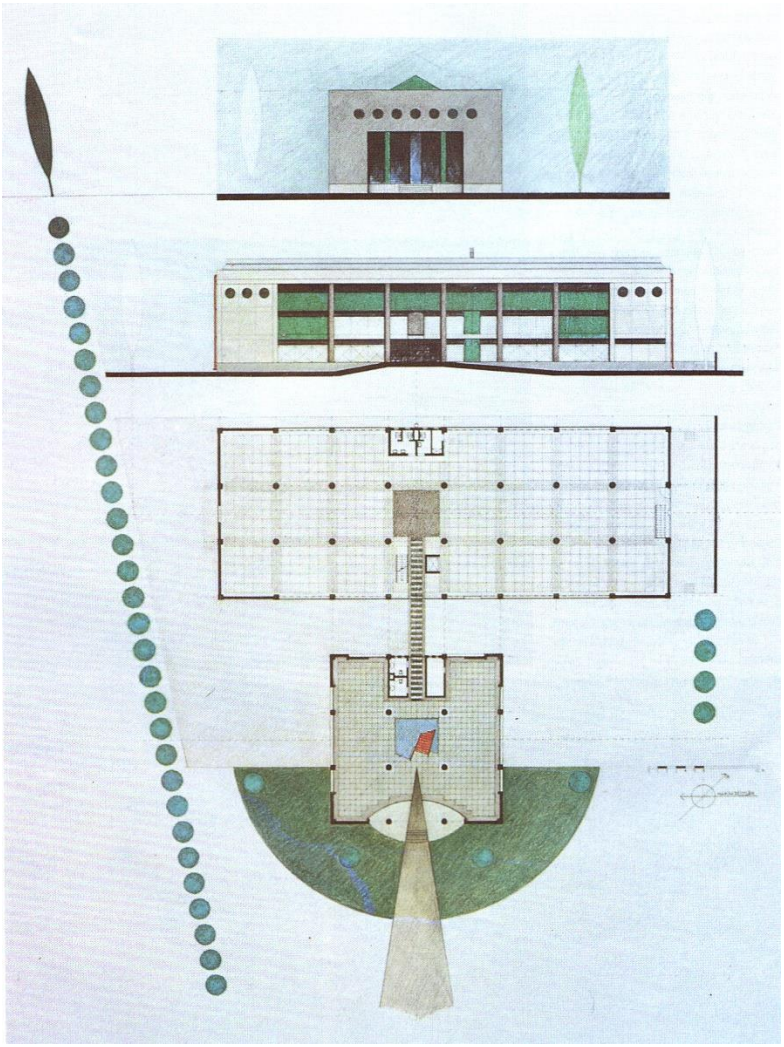

Figure 5.3. The late sketches of Gön Leather Factory complex
(Source: “Nevzat Sayın - NSMH”, 2022)

In his own words, Sayın states that he did a back-reading to collect data from Gön-1, which was designed in a rational framework of mind. During this back-reading, he re-questions his decisions at a metacognitive level, which he thought he had taken analytically before. This situation can also be handled through Quirk's relationship between intuition and metacognition. Intuitions can be made stronger by using reflection and self-assessment, which are two crucial metacognitive methods (Quirk 2006a: xvii). Quirk (2006b) mentions “practicing self-assessment leads to positive outcomes, including skill developments, academic achievement and motivation to learn” (p.25). At that point, among these, self-assessment brings expertise, moreover, expertise will feed intuition.

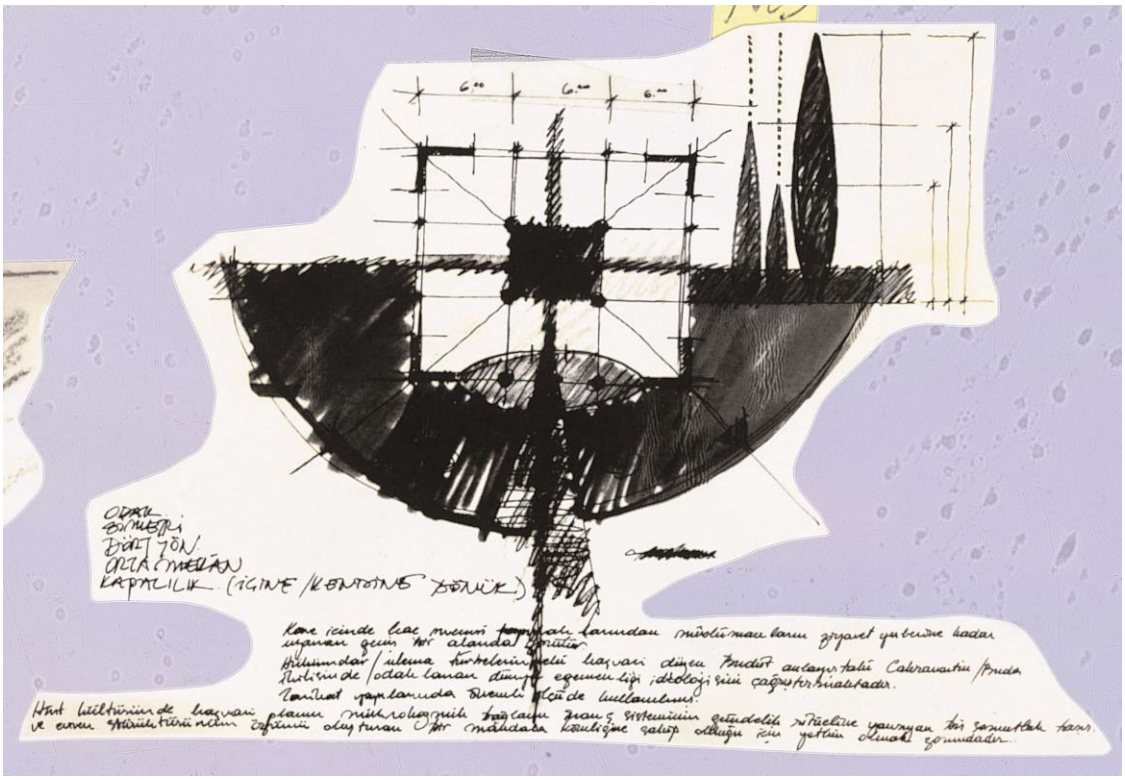

Figure 5.4. Back-readings notes on one of the sketches of the Gon-1 leather factory (Source: Sketches are taken from “Nevzat Sayın Architecture Office”)

Sayın's back-reading notes are seen on his sketch (Figure 5.4). The plan decisions, as stated by Nevzat in these notes, may be of critical importance. One of the essential details that should be decided during design is the form of the mass. For example, organic form or orthogonal form preferences can completely change the contextual connections of the design process of the building. Other than that, many geometric forms such as squares, triangle, or circular can be "valid" decisions for an architectural structure. These decisions can be made rationally in line with some data, or they can emerge spontaneously. Sayın expresses this situation as follows:

> […] For example, I noticed that the plan is a perfect square with a cross inside it. However, I thought I did it automatically. What else could there be in a very rational solution? Now, it is just us; of course, it could have been something else. Why was it square and not circular? Why was it square and not rectangular? At this point, I must admit that I was very impressed with my project. It was a strange feeling. I had distanced myself from my project; more precisely, that distance was formed by

itself. It was like I was looking at something someone else was doing. It was like it was not something I made myself. […]

As Sayın states, the process of examining his structure as an outsider caused him to question some of his decisions. What could be the trigger for Gön-1's massing decision? This could have been a rational decision: environmental data, size limit to be considered, maybe budget. However, when he thinks about it later, Sayın realizes that this decision was shaped by one of his areas of interest: Shrines.

> […] There is a term the Germans use for deep feeling. For me, it was such a deep reading. Then, I realized that the cross within this square was actually a cross within the square in the Central Asian tradition, in other words, an analogy to shrines. Very interesting. However, I did not set up the design that way; who knows better than me? I did not start building that way, but I got there. Moreover, these periods were the peak phases of postmodernity; the 80s. When you look at the structure, this is obvious; it is a post-modern building. However, when you move on to the sub-readings, especially the readings in the plan and the section, I think it is obvious that all of these occur intuitively. […]

Shrines are architectural structures belonging to the Turkic and non-Turkic central Asian traditions, which are referred to as mausoleums and monumental tombs. These structures are similar to the structures of Near-Eastern Christian traditions: a corridor formed by two interlocking octagons and a square plan in the center (Arık 1967: 57-58). Although these structures show certain common features in certain periods, the square form can be clearly read (Figure 5.5). At this point, the similarity between the general shrine architectural features and the mass decisions of Gön-1 can be seen. For instance, the keywords taken on the sketch in figure 5.5 are related to the shrine's architecture. These are: focus, symmetry, four directions, central space, and closeness.

Sayın's interest in antiquity and the shrines that are a part of it is at an understandable level with Gön-1's plan decision. Due to the complex working of the mind, it cannot be known easily through which layers such a mental action progress. However, what is crucial here is the way the subject who makes this decision defines such a decision: he describes this as intuitive and automatic.

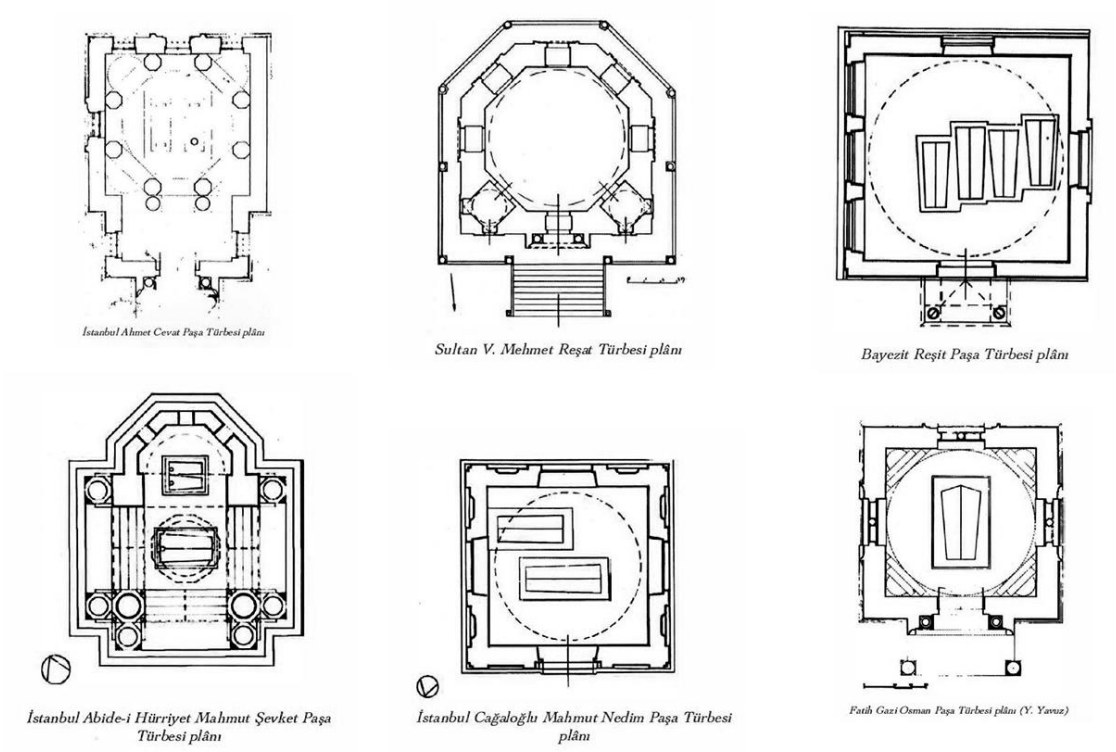

Figure 5.5. Some shrines plan examples.
(Source: "Geç Dönem Osmanlı Mimari Planları | Mimari Planlar", 2022)

However, Sayın underlines that he first described the concept of intuition, which emerged in his architectural life in this way, not as a mystical formation but as a kind of reflex. As he states, this description is closely related to the rational contexts it held in the past. It is seen that the concept of intuition is given chiefly a mystical role in philosophy, art, and mathematics. In particular, the inquiry-based thinking structure of philosophy has strengthened this mystical, mysterious and inexplicable state of intuition. Despite this, Sayın states that he established the conceptual basis of intuition over rationality in the early days:

> […] However, there is a situation; I did not call it intuition back then. I used to describe it as a "reflex". So, the way intuition emerges here, I think, is reflex. […] We do not say that the clutch is here, the gas is here, the brake is here, as we do while driving. Over time, an exciting organic relationship begins to develop between our hands, arms, minds, and feet. In fact, if you are a fast driver like me, you somehow consider what will happen next. There is no way you can think about them; Something inside you is making you do this. For a long time, I preferred to

> call it a reflex. Because, as I said, intelligibility and definability are critical to me. Therefore, I dealt with such situations in a rational framework. "What is there to be surprised about?" You are what kind of person you are; you are into antiquity. For so many years, you have researched, traveled, seen, drawn, and surveyed the things happening in this geography. This backlog has gone nowhere, not lost in a vacuum. They are in there somewhere. They have moved on to the creative forgetfulness section. It never crosses your mind, but they pop up when you need them. Yes, this is a moment I prefer to call "creative forgetfulness." […]

"Creative forgetfulness", which is Sayın's expression, can be considered on a parallel plane with philosopher Walter Benjamin's definition of personal accumulation. According to Benjamin, personal accumulation is instead accumulated and often unrecognized in memories rather than individual states that are firmly fixed in memory; they are found fused together in memory. However, unlike Benjamin, Sayın associates the act of "forgetfulness" with the way of being "creative".

At this point, he points out another distinction. If we accept that personal accumulations come intuitively to the surface afterward, a question arises: What kind of information that is forgotten and then accumulated in the memory or consciousness is the information that comes to light on an intuitive level during the architectural design process? Is this information related to the architectural act, or is it the details of everyday life that have little or nothing to do with architecture?

Researchers approaching this issue from different angles have been analyzed under the heading of intuitive thinking. For example, Klein prioritizes expertise in intuitive thinking[84], while Kahneman questions the reliability of intuition (Sibony, Klein, and Kahneman 2010). According to them, expertise plays a critical role in an intuitive judgment about the area of expertise (Kahneman and Klein 2009).[85] However, the important thing is the environment's reliability in obtaining information about that specialization.

In this context, Sayın attributes one of the sources of the intuitive decisions he made during his design process as his daily life experiences rather than his architectural expertise. For example, as he mentioned, his interest in antiquity is closely related to some

[84] Simon, Hogarth, and Quirk are some of the other researchers who associate intuition with expertise.
[85] Despite their differences, Kahneman and Klein wrote a ten-point article in which they agreed on a common point about intuition.

of the analogies he unconsciously referred to during his design process. Sayın summarizes this situation as follows:

> […] It is more like the first thing you said; non-architectural. For me, for example, it is essential to love antiquity so passionately, to have lived in Ionia, to know Ionian cities, to know that philosophy, to have read the Stoics, to try to understand the conflict between Aristotle and Plato by engaging Socrates. […] We were just talking about intuition, a subject we can develop by learning from other things, not architecture. Architecture is a discipline that can be developed with other things after having architectural knowledge; in other words, something we can build ourselves […]

While Sayın describes one of the sources of intuition as expertise and the other as non-architectural experiences, he mentions a "whisper" as a third source. Sayın's importance to the concept of place has been mentioned before. In architecture, the place is at the intersection of the abstract and the concrete. It has a scope of life, moreover, of lived experience. At that point, it can be said that the concept's philosophical background, its relationship with mathematics, and its geography-shaped structure are integrated into Sayın's phrase "whisper of the ground". This whisper, which belongs to the place he hears, can be a "context" in terms of architecture. Sometimes this whisper turns into a growl, not obtaining the necessary intuitive context. Therefore, the good and bad conditions Hogarth mentions may be similar to this situation. When the environmental conditions are good, the act of intuiting enters into a correct orientation, however, bad conditions cause growl and can block this abstract feeling (Hogarth 2001: 89).

At this point, the question of the reliability of intuition comes to the fore again. Are intuitions reliable or can they mislead the person? Studies show that intuition can sometimes lead to cognitive errors (Kahneman 2015). However, when the necessary conditions and the necessary level of knowledge are provided, the validity of intuitive information can increase. In a scientific sense, although this situation has been investigated with many experiments such as Kahneman and Tversky, one's views on this subject are also essential. At that point, Sayın states that he trusts his intuition:

> […] Because it depends heavily on your experiences. However, the predominant one depends on something else, something we do not know. I am pretty prone to

> sixth sense or similar parapsychological issues. […] like this, someone is whispering something to you. For me, it is usually "place"; the geography and the land where I will do the building. Architect Rafael Moneo calls it the whisper of the place. I think everyone can explain intuition in their way. I love Moneo's definition. You cannot always hear it, but of course, there are times when it snarls. However, usually, the place says something. For example, this seems very interesting to me; will you be stubborn? Will you surrender? Especially when building on sloping lands, there is a significant decision point. Will you bury the structure on this slope? Or will you build a structure like a scaffold on your feet and never touch the ground; Now, how rational could that be? I think this question turns into something that cannot be explained very well between you and the ground, to a deep relationship. Moreover, your intuition is telling you what to do. Interestingly, it usually says something good, too. When I say intuition, the answer to the question you just asked, yes, I mean something positive. Yes, that is a positive for me. My intuition does not make me do anything wrong; my excitement makes me do it, but my intuition does not. […]

Contrary to this mystical aspect of intuition, considering it as a form of expression that seeps through the layers of personal accumulation may cause the concept to take on a structure that can be changed and developed. In particular, whether intuition can be developed is another issue that decision-making researchers and psychologists have addressed. According to Hogarth, intuition can also be developed by feedback in appropriate conditions. De Bono agrees with Hogarth. Intuition can also be developed according to Sayın:

> […] Intuition, as I understand it, can certainly be developed. […] Maybe our inclination towards such things can be effective. For example, no one can bother me with something I do not want. In such cases, you lose interest from the very beginning. However, if the subject is your subject, you can learn it; like painting or learning to play the violin. I think it [intuition] can definitely be improved. But there is always something to be said, modern anthropology also supports this. We certainly bring something innate, but we bring a little something. We learn the big part from the society we live in; from our family, our friends, the closed or open

> organizations we are in, and our geography. I think this is something very important. […]

Sayın deals with the development process of intuition through learning. Information learned from society, family, and other organizations can contribute to the development of intuitions. However, he uses the expression “interest” as a prerequisite. Any experience of interest to the person will contribute to the development of intuition. This may be similar to Hogarth's "kind" conditions. According to Hogarth, people receive accurate feedback in suitable learning environments that allows their latent systems to reach correct answers. Therefore, this feedback will adequately support the intuitive thinking possible in the future. In addition, feedback received in bad learning environments is incomplete or misleading, so a person can learn to rely on incorrect answers (Hogarth 2001: 89). Kind conditions may vary from person to person, but they are closely related to the subject's interest.

In this context, the fields that Sayın is interested in are another point that should be emphasized in terms of understanding intuition. The changing nature of intuition at the subject scale has been stated before. Therefore, while examining the role of intuition in the architectural design process through a case study within the scope of the thesis, Sayın's life becomes a critical input. For example, along with his architectural expertise, he has interests in many fields that we can call non-architecture. These experiences, which he has accumulated from every venue of life, serve as a base for the intuitive decisions he later made in the design processes. He exemplifies the accumulation of non-architectural experiences and then their use in the architectural design process through his project named “Tepe Narcity” (Figure 5.6):

> […] There is a place we built called “Tepe Narcity”; the other day, someone asked my architect friend, “Why are these colorful?”. […] He also lives there. "Where do you live?" I said, “Look, on the 3rd floor of the block on the right, the blue next to the red one, I am sitting there,” he said. “Now, do you understand why I did it?” I said. It was just that. We are talking about a place with 2000 keys, there are 2000 units, and the population of Sinop was 25,000 if I remember correctly. It is a huge place, huge and aesthetically like looking through a kaleidoscope; you see something different every time you turn your head. […] My master's thesis was on collective housing. However, I did not complete it, but I worked hard. My main

focus was on how a socialist ideology can be a home? Is there a type of housing where low-income groups, workers, blue-collar workers, whatever you want to call them, can live together. […] For example, there is a building called Karl Marx-Hof, if I am not mistaken. The building was built in the 1920s. One kilometer of a wall is such an exciting place. And imagine. A more majestic building than Schönbrunn Palace. A place made for the working class. A very lovely counter argument has been drawn against the bourgeoisie or the aristocracy.

Now, when you put all this together, it overlaps with my political background. On the other hand, things that are done as mass housing are places that Emlak Bank used to do. Istanbul Ataköy district started in 1957, and the first block is the most beautiful. After that, the job starts to lose its quality, and the last thing is the worst. So, what changed? At this level of sameness, things go on and on, dividing them into blocks, refraining from making a big block, arranging them juxtaposed - but thus losing the place - and giving up the common areas. On the one hand, these are piling up; on the other hand, what is the Bauhaus trying to do in architecture periodically? Or how does Corbusier use color? How does it solve the Marseille Blocks? Why is the inside of each balcony painted a different color in Corbusier's Marseille Blocks? Why so? He could have just painted them all white. […] When you try to read and understand information from such multiple points in comparison with each other, something is telling you what to do. […]

Figure 5.6. The view of “Tepe Narcity”

(Source: “Nevzat Sayın - NSMH”, 2022)

After the example of Tepe Narcity, Sayın states that he encountered a similar situation in the “Lapis Han Office Building” project (Figure 5.7) as follows:

> […] There is a place where architects appear in various ways around the E5 [a major highway connecting Istanbul to Gebze]; there is very dense traffic. […] They want a 25-floor building, but there is a 35-floor building next to you; how will you look? We said we could be seen by doing the opposite. […] Since its name is Lapis Han, I naturally thought of making the building blue. Together with the colorist until the end, we went for a mottled blue by working with blues that are not similar but are derivatives of each other. Everything was accepted. It was difficult for them to accept it, but to summarize, it was highly appreciated and accepted. One of the owners of the company said, “I want something, but I am a little embarrassed”, “what do you want?” I said, “can't this building be red?” he said, “but your name is Lapis,” I said, “Lapis is our institution name, all our buildings are not blue. So do not mind it” he said, “Oh well, I had such a didactic relationship, I wanted to make blue based on Lapis Lazuli, I am both a leftist and an Alawite, red is just for me, I will do red.” […]

Figure 5.7. The view of “Lapis Han Office Building”

(Source: “Nevzat Sayın - NSMH”, 2022)

These examples are of critical importance in terms of understanding the non-architectural experiences that Sayın adds as a source to his intuitive thoughts. However, at this point, a problem arises: How can one understand whether an experience is related to architecture? While defining the discipline of architecture, its multi-disciplinary structure is emphasized. This multi-disciplinary situation causes architecture to be in a position that is directly or indirectly related to many subjects. Therefore, the relationship between a personal experience or knowledge that goes into creative forgetfulness, as Sayın says, with the act of architecture is a complex issue.

However, for example, Zumthor states that his intuitive decisions in design processes are generally unrelated to architectural education. Sometimes the smell he feels when he goes to a relative and sometimes a door handle, he greets when entering a place are the sources of his intuitive thinking style in the architectural design process[86]. These statements of Zumthor are more understandable when considered in the context of phenomenology, which is one of the school of thoughts to which he is close.

Phenomenology has been discussed both from an epistemological and ontological point of view (Öktem 2005: 28). Phenomenology, pioneered by Husserl and Heidegger, mainly focuses on the essence of objects. While Husserl approaches the concept with the question of the essence of knowledge in the epistemological sense, Heidegger questions the essence of existence from the ontological perspective.

One of the fields where phenomenology has been used in the recent past is architecture. The history of the concept of architecture reaches back to the earliest periods of humanity. In the past, people used environmental data to meet their basic needs. In parallel with the developmental stages of human beings, the areas they designed have also changed. With settled life, there has been a transition from macro to more complex spaces. Moreover, with the increasing importance given to space over time, the profession became specialized by taking the name of "architecture".

In the recent past, the prerequisite of pioneering architecture was to be intertwined with theory. Although the deep connection of architecture with human and human characteristics has a long history, the subject started to come to the fore in the 90s on the theoretical level. Phenomenology, which Husserl paved the way for and moved to a

[86] This is essentially a complicated process to analyze, and the complex structure of the mind makes such a distinction impossible. Nevertheless, the self-expression of the subjects can be an essential input here. For example, Zumthor's intuitive decisions that he attributes to his non-professional experiences may be subconsciously related to architectural expertise.

different ground with Heidegger, is also handled in an ontological context rather than an epistemological point of view in architecture. Especially the expressions of Pallasmaa and Norberg-Schulz were brought to the agenda with the projects of Zumthor and Holl. The role of the body in architecture has gradually increased; later on, the subject has gone beyond the body and come to intuition.

However, as stated, Husserl's phenomenological view and Heidegger's phenomenological perspective are different from each other. The conceptual design, which proceeds from the views of Heidegger, transforms architecture into a structure that questions existence rather than knowledge. However, at this point, the question arises whether the phenomenological tendency in architecture should be reconsidered as follows: Should the architect return to self-existence or, on the contrary, to knowledge? An architect returning to self-existence will design buildings through his or her own reality. As a result, the dominant role of such an act of design will be the architect, in other words, the subject. In the context of the relationship between the creator and the created, this interpretation in the architectural discipline of phenomenology is open to question. The views of Sayın, who is related to phenomenology, are a contribution to a similar debate:

> […] Husserl says that objects have their essence in their definition. But he usually says this based on formed objects. However, architecture is about made objects, that is, the things that people enter into the object. Think of it as my attempt to complete the scenery. When it is, it is not easy to separate it. There is no way you can pull the architect out of there because if we do that, we cannot talk about that object. What interests me more is not the object, not the architect, but a third; the user. The person who has not participated in this whole process, who sees it, who has a visual relationship with it. Judging by what these people think, they look precisely as Husserl describes phenomenology. The user is encountering something. There is the thing itself that was actually created by the architect or created by the others with the architect, and then there is the person looking at it and using it. So, Husserl is justified here. The object has an essence, but it is something made, not formed or created. Then the person looking at it has a consciousness, and he has an evaluation. Again, in my opinion, this issue does not go very far in architecture either. If you trap the relationship between the architect and the building, yes; however, I do not think we can look at it from there. But we can look at it from an architect's

> perspective on another building. […] When I look at Cengiz Bektaş's Headquarters of the Turkish Language Institution in Ankara, or when I look at Emre Arolat's Sancaklar Mosque, the object itself exists; it is the object. But Emre or Cengiz Bektaş made them. However, I am someone who did not participate in the process; I am encountering the object. When I encounter the object, Emre is now inside the object. Because I have an idea about them, and one thing that makes up that object is that person [designer]. Therefore, I love this side of phenomenology; this is how I perceive phenomena in architecture. I am more inclined to understand as the relationship between me and other people's objects, not the relationship between me and my object. […] when I begin to look at my creation, I also know that it is now a thing as itself, a self, but that unless I look at it, it will stay there by itself. […]

As mentioned by Sayın, phenomenology is hidden in the relationship between the architect and the user rather than the relationship between the architect and what the architect designed. The close relationship between phenomenology and intuition puts Sayın's statements at a point that may be important in terms of determining the structure of the scope. It has been stated before that there are different ways of reaching the essence in the phenomenological way of thinking. Husserl, Heidegger, and Spiegelberg discussed the definitions and secondary contexts of intuition from different perspectives. However, as the common denominator of all views, it can be said that intuition is a connection in phenomenology. This invisible connection between the person and the object is formed by intentionality in Husserl's expression, and by hermeneutical perception for Heidegger. At this point, Sayın's view of intuition as a tool through which he can reveal his existence may also be related to his phenomenological point of view.

The interview with Sayın can describe the role of an abstract concept such as intuition in the architectural act and architectural design process. The first thing that is important here is the awareness of the act of intuition. Some automatic decisions proven by scientific experiments in the literature are associated with intuition. Although intuition has different connections by definition, it maintains abstract and untold structure. Therefore, being aware of the validity of the concept is essential in terms of associating some decisions with intuition.

At this point, Sayın’s architectural approach at times analytical and other times intuitive through his expressions and his works. It can be said that the definition of

intuition for him is an undefinable expression that is spontaneous and automatic, but also related to experience and expertise. The spontaneity of the concept eliminates the precondition of being dependent on effort, such as rational decisions defined through System-1. However, the fact that it is automatic shows that the layers of such decisions are formed on the knowledge gained through previous experiences. While these experiences sometimes cover all kinds of experiences obtained in the flow of daily life, sometimes they include experiments that can be considered related to the field of expertise.

This critical role that Sayın attributes to intuition shows that there can be incorporeal approaches in the architectural design process. He describes and makes sense of such an approach through a back-reading. He begins the design process of Gön Leather Factory-2 with an analysis of Gön Leather Factory-1. This analysis led Sayın to think that some of his decisions, which he had described as rational, might actually be automatic. According to him, these automatic decisions arise spontaneously through past experiences. This situation is similar to the working style of the mechanism attributed to system-2 under decision making approaches in the literature. Intuitions can enable new knowledge to emerge in new situations by separating layers of knowledge obtained through one's experiences. This information can be a crucial input in architecture, which has an open-ended and multi-disciplinary structure.

CHAPTER 6

CONCLUSION

The human mind is much more complex than it seems. At this point, a person perceives more than s/he realize and forgets more than s/he remembers. Therefore, information and judgments thought to be lost are stored in the depths of consciousness. In this context, intuition, which is called the sixth sense in popular culture, is interpreted as being able to establish a connection between data that is thought to have not surfaced in consciousness.

Intuition can also be described as a skill that grasps what or how the behavior applied to practice will be before practice. However, this ability cannot function independently of knowledge at some point. In other words, understanding without knowledge is impossible in a logical framework. Therefore, the concept of intuition, which emerges before judgment, requires an informational ground. This requirement reveals the importance of experience. For example, Aristotle underlines the importance of valuing the judgments and opinions of elders. Experience increasing with age contribute to the personal accumulation and creates a source for intuition.

It is seen that intuition, which has been discussed about from ancient Greece with its mystical aspect in fields such as philosophy, art, and mathematics, evolved and turned into intuitive thinking. The two concepts can be seen as both different and synonymous. However, it is undeniable that the implications of the concepts are different for differ people. As a mystical vision, intuition, a communication tool with divine and the skies, is a whisper in a good sense for Socrates, truth for Plato, and a way of making sense for Aristotle.

The philosophical way of thinking that started to develop with Renaissance continued to consider the concept of intuition in relation to divine. With that, it has been used as a tool to make sense of existence in the ontological context. However, the concept that has differentiated at this point has evolved into the title of intuitive thinking. As a result, the close relationship between intuitive thinking and consciousness, which started to be handled in a logical framework, reduces the unknowable aspect of the concept to knowability.

The literature shows that the relationship between intuition and architecture is sometimes handled through this type of reduction, and sometimes it is discussed from a mystical point of view. Architect Nevzat Sayın, who was chosen as a case study within the scope of the thesis, underlines that he has ideas that he can express intuitively during the design processes. He states that he entered such a thinking process and realized that one of his first structures, Gön Leather Factory-1, was while he was reading back as an outsider. For Sayın, who defines this as a moment of enlightenment, intuition essentially provides understanding and interpretation together with knowledge and vision.

The literature review shows that an intuition might play an active role in the architectural design process. The necessity of rational decisions and practices prevailing in the architectural practice is obvious. After all, architecture contains many mathematical expressions and connections. However, considering intuition as a design tool, as a mechanism that works automatically and spontaneously, will also allow for a deeper investigation of the architectural design act. In particular, architectural education can be considered as one of them.

When considered as a multi-disciplinary and complex problem-solving action, learning and teaching architecture stands out as critical issues. The design, which includes many dynamics, may have certain rules. However, the level of creativity can be questioned in a design that proceeds with certain rules. Creativity is a phenomenon that brings diversity. Any design that limits it in a certain rational framework will inhibit creativity.

At this point, intuition can be seen as an essential tool. The student can provide information diversity by interpreting his/her experiences in different layers with automatic decisions such as intuition. The fact that intuition is a learnable concept and improvable skill provides such an argument researchable. The concept of a single truth brought by rationality will reveal sensual means and "valid" ones. The conditions under which the status of validity can be met and how it is described may differ from person to person. For example, Sayın describes this situation as "satisfaction".

It is seen that the source of intuition is mentioned a lot in the literature, whether it is the stakeholders of the architectural act in the theoretical framework or the researchers of decision-making mechanisms. Sometimes expertise, sometimes all kinds of everyday experience, is cited as a source for intuitive decisions. Undoubtedly, expertise is a compelling actor in automated decisions in the context of accumulated experience.

However, intuitive decisions are seen as judgments with many different components. Therefore, it is unlikely that only expertise can contribute to such a complex formation.

All kinds of details of daily life such as smells, sounds, images, traces, and expressions, which can be considered non-expertise, are stored through personal accumulation. At this point, it is seen that the experiences that can be considered outside of the architectural act and expertise provide essential inputs for Sayın in his intuitive decisions. While Sayın describes this situation as creative forgetfulness, he expresses this area as a section where all kinds of experiences are stored after they are perceived. However, architecture's multidisciplinary and complex nature raises the question of what kind of experiences can be considered outside of architecture.

In this context, the concept of expertise can be considered as building design within the act of architecture. However, since the design is a system with many inputs, connecting such an act with only designing the structure is not correct. Therefore, intuition in the architectural design process is a notion that covers all kinds of daily experiences and experiences gained through the act of designing buildings. However, within the scope of the thesis, this situation is handled as expertise and non-architectural experiences.

At this point, Sayın does underlie the role of architectural expertise. However, the critical point is the other actors that the architect adds to such expertise. The origin of intuition has been discussed from ancient times to the present through different topics and concepts. This difference is related to the abstract and unpredictable nature of intuition. While this origin is generally seen as divine in philosophy, art, and mathematics, it has recently been associated with expertise and all kinds of experience. Sayın lists three main actors as the origin of the concept of intuition in the architectural design process: 1) Architectural expertise, 2) All kinds of experience from everyday life, and 3) Whisper of the place.

In the architectural design process, analytical approaches sometimes come to the fore; sometimes, it is seen that ways of thinking that can be expressed intuitively come to the fore. Although there is an actual distinction between the two concepts, it is believed that the source of any mental activity shown in daily life or problem-solving actions include both ways of thinking.

The concept of intuition in architecture is often defined as a source of creative inspiration, an explanation of how the creator found a solution to a problem (Conners 1990). At this point, the creative activity that emerges in the architectural design process

has a cognitive structure (Smith, Ward, and Finke 1995: 2). As Smith et al. (1995) stated, creativity includes the stages of producing and discovering within the individual's mental activities (p.146). Within the framework of these stages, the concept of intuition comes to the fore as one of the parts of the cognitive structure of creativity. This delicate but critical link between creativity and intuition seeps into the layers of the architectural design process.

The design concept, by its nature, focuses on the necessity of asking questions rather than on how to solve the design problem (Schön 1985). This critical point, also expressed by Sayın, causes the starting point of the architectural design process to be an essential issue: How? For what? For whom? Why? These questions reveal the data that will be added to the design process. This situation can be expressed as a correct method in the context of the structural character of the architectural design process. However, at this point, a different question comes to the fore within the scope of the thesis. Can the data obtained at the beginning of the architectural design process cause a limitation on the designer's intuitive decisions? These questions asked at the beginning of the design process and the data received will form a framework at the designer scale and in the context of the project. Three main elements that may cause such a limitation can be mentioned for Sayın: 1) All kinds of data obtained as a result of the analysis, 2) Actors involved in the process of the building such as the regulation, stakeholders, owners, contractors, masters, and 3) General design criteria of the designer.

Intuitive thinking is the set of judgments that arise with the mind's automatic processing. Establishing a framework prior to this type of thinking can prevent the emergence of genuinely intuitive thinking. At this point, the framing effect presented by the behavioral economist Kahneman under cognitive biases has been examined in the context of intuition and intuitive thinking in the architectural design process. The received data can cause a framing effect in the formation of the designer's intuitive decisions. While Sayın accepted the framework formed by the data, he underlined the necessity of such a situation. The aspect of the architectural act that increases the possibilities provides the formation of many different structural expressions. Completing the scenery requires a particular framework in this type of diverse environment. Here, as Schön mentioned, the important thing is the questions asked. For a correct framing effect, the right questions must be asked.

What are the necessary prerequisites for expressing a judgment as an intuitive judgment? The fact that a judgment is natural and spontaneous in the literature brings

with it the belonging of that judgment to the concept of intuition, which has changed in the period from ancient Greece to today's rationality. Such a situation raises the question of the structure of intuition: What is the relationship between intuition -which is paired with expressions such as automatic, fast, implicit, natural, mythos- and mind, consciousness, and memory? Neufeldt and Guralnik (1988) define intuition as “the direct knowing or learning of something without the conscious use of reasononing; immediate apprehension or understanding” (p.709). It is not easy to talk about a mystical intuition in the way of thinking in which consciousness is active. The fact that subconscious knowledge, experience, and teachings come together with different forms of formation in different layers, and create a judgment can be associated with “remembering” rather than intuition. Such a formation is related to Husserl's concept of “remembrance”. According to Husserl, recollection is the re-presentation of something or an event that has happened before.

Within the scope of the thesis, intuition and intuitive thinking and their roles in the architectural design process have been researched. The subsequent conceptual framework is extended to architecture based on the statements of the architect Nevzat Sayın. As a continuation of the thesis, the relevance of bringing the micro parts of an experience to consciousness through re-enactment with intuition and remembrance, and the prerequisites of the intuitive knowledge are issues that can be addressed in the context of intuition in the architectural design process.

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