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## Original Research Article

# Typology and Comparative Analysis of Research Approaches to Aesthetics of Architecture\*

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## Abstract

**Problem statement:** Since the 1970s, aesthetic aspects and principles mainly have been developing based on different theoretical and empirical views, which has changed researchers' insights into previous general principles. Therefore, research focus on various areas of theoretical problems in aesthetics resulted in the emergence of new attitudes towards the appraisal aspects of architectural works. Nevertheless, there is a weak consensus on theoretical and conceptual frameworks in this regard, and there are still controversial issues in many areas. Hence, two questions might arise. What are the main categories of contemporary studies in the aesthetics of architecture? What evaluation criteria have been used for the aesthetic analysis of approaches?

**Research objectives:** Considering different aspects, this study focuses on typology and comparative analysis of relevant approaches. The importance of knowing these approaches lies in the fact that research into the aesthetic ideas, which are basically related to the cultural existence of humans, can restore theoretical aspects to practical processes of creativity and provide the foundation for environmental perception and further developments.

**Research method:** In this qualitative study, a descriptive method was used followed by a qualitative content analysis through a comparative-interpretive approach to identify the main variables in the methodology of prominent and reputable scientific studies. Logical reasoning was then employed to analyze and compare their insight principles and explanatory results accurately.

**Conclusion:** All environmental aspects, such as desirability and human well-being promotion are included due to the necessity of developing methodological disciplines for evaluations based on human "experiences" of the environment. Research attitudes must address studies of aesthetics through anthropocentric approaches by considering multiple and dynamic perceptions within the context of an environmental, active, cooperative, and empirical discourse. In fact, the concept of aesthetics in architecture requires the identification of in-depth insight into aesthetic perception from "perceptive human experience".

**Keywords:** *Architectural aesthetics, Research approaches, Anthropocentrism, Aesthetic experience.*

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### Introduction and problem statement

Since the late 20<sup>th</sup> century, “aesthetics” has been considered a distinct field of study in the bulk of architecture research works and today by performing an extensive role in different studies, aesthetics acts as a motivation for the fundamental transformation of concepts and theories based on a wide range of historical, cultural, and social values. In different architectural aesthetics studies, the diversity of existing attitudes has become a complicated, interdisciplinary topic that is now developing novel theoretical ideas based on an extensive area. Since the 1970s, aesthetic aspects and principles have mainly been developed through different theoretical and empirical views. This has changed researchers’ insights into the previous general principles and values, including the “gestalt” theory. There is now no sign of even the early studies that developed the absolute and universal concept of aesthetics in architecture used as a research context.

Research focusing on different areas of theoretical aesthetics problems resulted in the emergence of new attitudes towards various evaluation aspects of architecture, even the concepts related to “empathy” and perception of beauty that had been developed in the early 20<sup>th</sup> century. However, these attitudes have now changed in modern discourses of architecture. Therefore, research attention to different areas of theoretical aesthetics problems led to the emergence of novel attitudes towards various evaluation aspects of architectural works and sociocultural roles. Nonetheless, there is a weak consensus on theoretical frameworks in this regard, and there are still controversial cases in many areas. In addition to the complexity of aesthetic perceptions and architectural evaluation as opposed to other artistic works, another problem of interest is the desirability and function of an architectural work.

Therefore, changes in researchers’ attitudes have gradually set research priorities based on different approaches by focusing on sociocultural dimensions on the one hand and identifying aesthetic perception and evaluation as a distinct area on the other. In addition, studies of environmental preferences are considered self-contained subjects in aesthetics. Such studies have fundamentally explained people’s emotional responses, especially the way in which perception is related to the features of architectural works. As a result, this interdisciplinary field has become the source of diversity, epistemological selections, and a distinct methodology. Nonetheless, research into the perception and evaluation of aesthetics remains still vague due to an interval of different theoretical discourses regarding the nature of aesthetics in architecture.

It is important to identify the major models affecting aesthetics research approaches to architectural design and planning. Therefore, the importance of these approaches lies in the fact that the analysis of aesthetic ideas, which are basically associated with the cultural existence of humans, can restore theoretical aspects to the practical processes of creativity, environmental perception, and further developments.

In fact, when aesthetics is considered a research attempt at analyzing a person’s specific experiences, including attitudes, perceptions, emotions, and actions, the goal is to identify mental states and special activities of the mind in order to perceive how and when these states emerge as an aesthetic experience. Therefore, it is vital to identify and accept the essence of aesthetics in architecture, which usually receives little attention in terms of theoretical content. There is always confusion as to what theoretical model of aesthetics for architecture would be more comprehensive in this regard. In fact, this concept always appears to be a

vague quality that requires cohesive data for more accurate research.

Considering the importance of identifying the models affecting research approaches, this study aims to find scientific and intellectual governing systems through analysis of contemporary studies since a search system or a research paradigm orients theorizations, that include basic assumptions of science, and explain how to perceive the world. Hence, a search paradigm or system is somehow equivalent to an approach that researchers adapt to conduct studies. Moreover, research approaches and philosophical foundations of a methodology can completely affect analyses, processes, techniques, and results presented by researchers (Raeisi, 2016, 4-5). This highlights the necessity of knowing research approaches considered an area of complicated nature. Seeking to evaluate various dimensions of aesthetics in architecture, this study aims to regularize the previous research attitudes to some extent. Therefore, analyzing the methodological conventions used in various studies and presenting different interpretations of the adopted methods can help provide a reference for the identification of different research structures in this field. Reviewing these attitudes can introduce certain discussions that can be used in the conceptual development of empirical topics pertaining to aesthetics in architecture and finally lay the foundations for identifying multiple research conventions for architectural aesthetics.

Despite different studies that have been conducted on different dimensions and criteria for aesthetics in architecture and relevant qualities, no specific methodology or theoretical framework has yet been proposed. In fact, previous studies have mainly addressed only one or a few connected dimensions of aesthetics. To put it another way, they have merely emphasized “aesthetic

movements” in the history of architecture or the “cultural-environmental” foundations of aesthetic behavior. No systematic study has been conducted to deal with a series of different theories in this field. Despite the ever-increasing scientific attention to various dimensions of aesthetics in architecture, there is still a research gap; thus, the methodological analysis of these studies can help clarify future research paths.

This study addresses two questions. What are the main categories of contemporary studies on architectural aesthetics? What evaluation criteria have been used in the aesthetic analysis of research approaches?

## Research Method

In this qualitative study, a descriptive method was used followed by a qualitative content analysis through an adaptive-interpretive approach to identify the main variables in the methodology of prominent and reputable scientific studies. Logical reasoning was employed to accurately analyze and compare previous insight foundations and their explanatory results. For this purpose, 81 studies were identified as reputable scientific books and papers of the 1989–2017 period through Google Scholar. The research domain includes the studies that have particularly analyzed aesthetics in architecture with respect to their epistemological foundations. Therefore, the available samples were selected as the statistical population through complete enumeration. The results of such studies introduce all of the relevant studies completely to present the dialectic relationships between research variables and the adopted approach. They also open up new horizons to researchers by showing the abilities and shortcomings of research approaches. For this purpose, the studies were classified as typological comparison tables, and the criteria for each class were analyzed to reach the common goals of approaches. In addition, the analytical tools and methods of each approach were then

analyzed. Finally, this study proposed a foundation as a “common scale” (through a hybrid method/technique of multiple approaches) for future studies in an inferential way by proposing a discourse and convergence on the existing research conventions.

## Theoretical Research Foundations

### • Typology of Research Paradigms and Approaches for Aesthetics in Architecture

A paradigm interprets a “scientific system” as a concept of worldview and general theory, developed by humans to describe the universe, and analyzes the realm details to form the structures of thoughts and opinions as an abstract matter (Soltani, Mansouri & Farzin, 2012, 6). In fact, the concept of paradigm is considered in a specific area of knowledge to regularize the proposed thoughts and beliefs through a super-instrumental perception of paradigm with an orientation feature and a strategical nature in knowledge (Askari & Behzadfar, 2016, 196). Accordingly, the necessity of analyzing architectural aesthetics can be discussed in two aspects, the first of which is the principle that discusses “mentality” in the judgment of aesthetics, whereas the second is to develop the “theory” of architecture. Therefore, the public intellectual atmosphere now includes the concepts that have been learned from various theoretical and empirical principles (different environmental, social, cultural, psychological, and other ideas). In fact, such diverse interpretations lead to different ideas of aesthetics and perceived values; therefore, the emergence of these ideas can turn into an impetus for studies that are changing continuously. It can then be stated that the typology technique can have a differential nature to identify and classify different types in addition to helping better understand the theoretical development of paradigms and form an interdisciplinary system. Hence, studies of aesthetics in architecture can be divided into two general categories, i.e., conceptual studies and empirical studies. These two categories are simultaneously operating to progress and

identify aesthetics in architecture. As a result, it is necessary to analyze the research approaches of these studies in order to determine underlying components.

### 1- Interpretive Studies: Normative Paradigms

Expanding different aesthetic views, this category mainly includes the studies that result from personal interpretations of researchers through descriptive-interpretive criteria with general importance. These studies analyze architectural aesthetics apart from empirical analyses based on normative theories. The relevant research approaches include 1) the philosophical approach<sup>1</sup>, 2) the functionalistic approach (which is a perspective that addresses the form-function interplay through a “functional aesthetics” view)<sup>2</sup>, 3) the ethical approach (which operates based on fundamental value principles to obtain aesthetics as commitment), and 4) the historical approach (Table 1).

### 2- Empirical Studies: Positive Paradigms

Putting special emphasis on “environmental preferences”, this category of studies on aesthetics in architecture includes the main topics of contemporary studies in the field of “perception”. Research paradigms of personal preferences are among the tools for developing the perception of psychological processes used as the basis for the aesthetics choices made by humans. In fact, identifying and perceiving the factors of “perceptive experience” that lead to aesthetics or pleasure in a person refer to the studies of perception, cognition, and attitude focusing on “empirical theories” and are known as “empirical aesthetics”. This dynamic outlook has resulted in novel ideas and theories leading to aesthetic jargons and relevant problems acting as the impetus for research into the perception of form/space and its effects on the human experience. Such empirical studies are based on correlation analysis to analyze the aesthetic experience relying on personal experiences through scientific and quasi-scientific techniques (Lang, 1987, 120). These studies seek two factors: 1) aesthetic factors leading to aesthetic

Table 1. Conceptual studies of aesthetics in architecture. Source: Authors.

Conceptual studies of aesthetics in architecture			
Approaches	Theoretical views	Cognitive indices	Research foundations
Philosophical approach (Scruton, 1989; Winters, 2007)	Interpretative/analytical (based on Kant's aesthetics)	Objective and subjective criteria	Abstract
Functionalistic approach (Thakur, 2007; Shiner, 2011; Litvin, 2015)	Interpretative/critical	Formative criteria in relation to functionalistic aesthetics (social/symbolic/cultural considerations)	Normative
Ethical approach (Lagueux, 2004; Illies & Ray, 2016)	Interpretative/critical	Value and commitment criteria for (environmental/psychological) well-being improvement	Interpretative attitude
Historical approach (Thomas, 2015; Bhatt, 2000)	Descriptive/analytical/critical	Prescriptive criteria (mainly objective)	Personal preferences

responses and 2) differences in preferences for these factors among experts and masses. This second factor refers to subjective, physical, and behavioral reactions caused by different aesthetic factors (Liu & Chuang, 2014, 2).

Therefore, it can be stated that evaluating architectural aesthetic responses can be considered one of the important concerns of empirical researchers and can reflect specific hypotheses stating that aesthetic perception caused by psychological reactions in the human brain. In addition, human's complicated responses are generally affected by perceptive drives. Thus, the perception of aesthetics requires subjective systems for analyzing the environment, and memory systems managed to remember human experiences. Such systems could then develop through awareness, education, and society. As a result, analyzing perceptive problems as the basis for the perception of every aesthetic experience of human gains importance as a physiological or sociocultural quality introduced as the root and basis for empirical studies on aesthetics in architecture. Finally, this research category can also be introduced as two attitudes, *i.e.* cognitive and perceptual studies, known as different approaches.

### 2- 1 Cognitive Studies

As discussed earlier, "empirical aesthetics" studies replace form-oriented (interpretive) theories by emphasizing the reactions related to symbolic, sensory, and physical aspects of architecture. Such an attitude is in conflict with the interpretations

of aesthetic philosophers such as Scruton, who criticized the relativity of aesthetics. As a result, individual interpretations of architectural aesthetics were mainly suppressed by the approaches that considered environmental preferences resulting from social (ideological, political, and economic) structures. This new formulation, named "social aesthetics", resulted in the rapid proliferation of studies seeking to extract social meanings of the environment. Therefore, the logical outcome of this approach was to analyze how environmental preferences (perceptions and attitudes) would diverge among different social and cultural groups (Pitt & Zube, 1987; Hubbard, 1996).

Therefore, the cognitive approach attributes the perception of architectural aesthetics to the outcome of human "awareness" and includes the research plans that have different impacts on aesthetic perceptions to extract comprehensive and dynamic knowledge about the effects of multiple external and individual (personal/social) factors. In fact, cognitive models are mainly affected by "applied considerations", and researchers mainly aim to develop the conceptual and theoretical frameworks that enable them to discover and describe the psychological principles and processes which justify human "experiences of aesthetics". These researchers usually use the measurement indices obtained from causal relationships between environmental changes and psychological impacts. In this regard, the environmental aesthetics theory states that acquiring knowledge on environmental



functions can lead to preferences (Carlson, 2000). In fact, “cognition” in these approaches includes the intrinsic process of receiving information (knowledge) within the process of perception; therefore, perception and cognition have potential relationships with each other and with the physical personality of the environment. These probabilities result from the mutual reaction between the individual and the environment. Therefore, humans share similarities in their reactive evaluations of the environment due to ecological, cultural, and environmental conditions (Nassar, 1998, 37). Nassar’s probabilistic theoretical framework (1997) explains the interplay between aesthetics and response based on the human-environment interactions and states that the human aesthetic response has probabilistic relationships, which can result in the identification of an intervening key variable in the process of perception. These responses are changeable with regard to personal views, social views, cultural experience, goal, expectation, and objective/subjective views with all different probabilities (Liu & Chuang, 2014, 2). Generally, cognitive research approaches include different other approaches: 1) the sociocultural approach<sup>3</sup>: two types of aesthetic evaluations can be discussed here, i.e. A) content evaluation (semantics/signs/symbols) and B) preference evaluation; 2) the educational approach that includes specialty-centered evaluations (differentiation between architects and non-architects)<sup>4</sup>; and 3) the sustainability approach<sup>5</sup> (Table 2).

## 2- 2- Perceptual Studies

In studies of empirical aesthetics and its nature, the main concepts have resulted in two views in the evaluation of environmental aesthetics: 1) studies of evaluations and 2) studies of preferences (assessment). In studies of evaluation, experts are generally able to objectively analyze aesthetics and translate its components into paradigms and criteria. In other words, “objectivity” and “subjectivity” have specific roles in evaluation, which is a process-

oriented and cognitive procedure. However, studies of preferences (assessment) are generally a product-oriented procedure through judgment, score, and degree (Jafariha, 2017, 96). Although the evaluation approach has been dominant for a long time, it has gradually been proven that environmental evaluation and its attractiveness are affected by people’s “emotional” considerations, which basically depend on the problem of “perception”. Therefore, the preferences approach (priority assessment) has been used in studies ever since with respect to the problem of human perception, and environmental psychology has proposed a reference framework for most studies by analyzing the human-environment interaction (Galindo & Rodriguez Corraliza, 2000, 14).

Considered a common research context in empirical studies, analysis of emotional processes identifies the prominent characteristics by assuming the relationship of judgments and preferences with people’s psychological functions. These studies have followed two approaches: 1) identifying the major psychological advantages of relationships (interactions) with an environment of high aesthetic value (Parsons, 1991, 2) emphasizing the analysis of subjective components of human welfare to discover the relationship between evaluations and judgments of environmental preferences and other relevant emotional responses (Herzog & Bosley, 1992; Staats, Gatersleben & Hartig, 1998). The second category is considered to include important studies. In general, approaches to these studies are as follows: 1) the information theory approach<sup>6</sup>; 2) the psychosomatic approach (Table 3); 3) the emotional approach<sup>7</sup> (this approach has tried to related physical/visual variables of exterior and interior architectural forms to mental attitudes and priorities and analyze the relationship between physical correlation and its emotional dimension) (Table 4); 4) the phenomenological approach<sup>8</sup> (this approach includes the empirical studies consisting of environmental phenomenology and psychology that interpret the (intellectual/emotional) concept

Table 2. Cognitive approaches in studies of architectural aesthetics. Source: Authors.

Approaches to cognitive studies in architectural aesthetics					
Approaches		Theoretical views	Cognitive indices	Foundation of studies	
<b>Sociocultural approach</b> (Groves & Throne, 1988) (Purcell Lamb, Peron, & Falchero., 1994; Purcell, Peron, & Sanchez, 1998)	Content evaluation (semantic aspects) (Hubbard, 1996)	Semiology	Interpretative	Objective or subjective criteria	Social aesthetics
		Symbolic metaphorical (implicit/explicit meaning)	(social sciences)		Quantitative methods
	Customized evaluation (affected by social, economic, and media processes) (Mann, 1979; Groat, 1988; Saunders, 1999)				Analytical attitude
<b>Educational approach</b> Formation of environmental preferences through knowledge structures in a society based on education and culture (Galindo & Hidalgo, 2005; Danaci, 2015, 2012; Mahdaveinejad, Bahtoei, Hosseinikia, Bagheri, Motlagh & Farhat, 2013; Uzunglu, 2012; Mako, 2012)		Interpretative-analytical (specialty-orientation evaluations)		Awareness, cognition, and experience criteria	Specialty-orientation (Groat, 1982; Purcell & Nassar, 1992)
<b>Sustainability approach</b> Relation with environmental awareness in ecology and relation with aesthetics principles (Kquofi & Glover, 2012; Roeser, 2013; Fazel & Shakarami, 2014)		Analytical-interpretative		Value and ethics criteria	People’s evaluation of a single subject based on age (Devlin, 1994), gender (Stamp III, 1999), social class (Wilson, 1996), and geographical and cultural similarities

Table 3. Empirical research approaches to studies of architectural aesthetics. Source: Authors.

Information-theory and psychosomatic approaches to studies of architectural aesthetics					
Approaches		Theoretical views	Cognitive indices	Foundation of studies	
Information-theory approach		The experience-oriented form theory (Moles, 1966)	Analytical-Interpretive	Objective	
	Gestalt psychology		Gestalt analysis of form and expression (visual perception)	Expressive quality of form	Quantitative method
		The visual perception theory (Arnheim, 1977; Grütter, 1987)			Analytical attitude
	1. Entropy index <sup>9</sup> (Minai, 1993) 2. Formative aesthetics (variables: A. visual complication; B. order: unity and transparency; C: spatial variables: openness and decoration) (Liu & Chuang, 2014, 3)				
<b>Psychosomatic Approach</b> 1- Berlyne: Aesthetics and psychobiology, (1971) General principles of people’s aesthetic behavior in relation to the environment; the relation between excitement level and environmental structure (psychological-physical, ecological, structural, and social nature); character, motivation, and individual <sup>10</sup> (Lang, 1987, 211) 2- Comparing complexities and preferences of environmental aesthetics (Wohlwill, 1976)			Analysis of emotional responses and voluntary-exploratory activities	Motivational dimensions of behavior and features of environmental impetus; variables: novelty-familiarity; complexity-simplicity; sustainability-changeability (Galindo & Rodriguez Corraliza, 2000, 15)	
			Analysis of a person’s mental and biological manifestation		

through descriptive experience and quality of aesthetics.

Smith based the architectural aesthetics components on analytical frameworks. He considered the mechanisms such as evolutionary theory, biology, and neuropsychology that involved

aesthetics responses. By expanding philosophical perception scopes about the circumstance of unconscious architectural experience, he considered to intuition and insight (Smith, 2003); (Table 5). 5) the neuro-aesthetics- approach<sup>11</sup> (this approach is dedicated to the studies of neurological

Table 4. Emotional approaches to studies of architectural aesthetics. Source: Authors.

Studies	Emotional evaluation of physical/spatial components of architecture in an emotional/perceptual approach	Foundations of studies
(Herzog & Bosley ,1992) (Ghomeshi, Nikpour & Jusan,2012) (Ghomeshi & Jusan, 2012)	Emotional evaluation of unknown urban places Analysis of cognitive properties of façades based on physical aspects of buildings and dependent variables	Studies by Russell (1987) Emotional evaluations and reactions to the environment through two main components: 1- enjoyment (emotional value); 2- stimulation (effect intensity)
(Weber & Schnier & Jacobsen, 2008) (Gjerde, 2010) (Jennath & Nidhish, 2016)	Visual effects of architectural forms and aesthetics judgments	(Russell & Mehrabian, 1978; Russel, 1980; Russel & Pratt, 1980; Russel, Ward & Pratt, 1981; Russel & Lanius, 1984)
(Alp, 1993) (Liu & Chuang, 2014)	Aesthetic components and responses to interior spaces	2. General methods for evaluating the generality of architectural elements through subjective evaluation criteria and quantitative methods of measuring perceptive/emotional content and people's preferences
(Stamps III, 1995) (Bishop, 2007, 65)	Stimulation criteria for environmental preferences Aesthetic reactions to architecture through the analysis of evaluation models (preferences through difference or familiarity)	

Table 5. Phenomenological approaches to studies of architectural aesthetics. Source: Authors.

Studies	Analysis of architectural aesthetics experience in a phenomenological approach	Foundations of studies
The Architecture of Happiness (Debotton, 2009)	It presents an aesthetic feature as certain concepts, including discipline, balance, subtlety, and cohesion and presents self-identification through philosophical and psychological attitudes and the mechanisms hidden behind unconscious reactions of architecture.	Evaluating the emotional content of architectural space Assessing an individual's emotional experience Anthropocentrism Emphasizing the concept of empathy in the perception of aesthetic Mainly qualitative analyses in field conditions (through open-ended questions) Importance of aesthetic quality Descriptive-interpretative attitude Experience-oriented Nonobjective
The dynamics of delight (Smith, 2003)	It analyzes the value of aesthetic experience and causal explanations of theoretical enjoyment and emphasizes the qualitative aspects of form and space by presenting subjective tools to improve environmental preferences.	
(Bohme, 1993; 2017) (Bermudez, 2017; 2015; 2013; 2012; 2011)	Expanding the concept of aesthetic atmosphere in architecture Wonderful (unusual) experiences of architecture	
(Pallasma , 2015); (Hall, Gomez & Pallasma 1993); (Mallgrave, 2010); Pérez-Gómez, 2016)	Emphasizing the sensory/physical experience in aesthetic perceptions	

processes in human’s behavior or neurological steps in the aesthetics experience such as emotional or cognitive variables) (Mallgrave & Goodman, 2011, 343); (Table 6).

### Discussion

Architectural studies mainly have an interdisciplinary view on their approaches to aesthetics. Based on a wide range of research conventions, there is a general emphasis on identifying research strategies adopted from other sciences because all conventions rely on

their special epistemology. Moreover, aesthetic principles are given different meanings through a special epistemology and are perceived through different theoretical frameworks. Aesthetic concepts were accompanied by an interpretation of objective aesthetics in early studies, and the formative approach was considered a prominent paradigm in those studies through a general evaluation of visual priorities in a paradigm. In fact, this type of interpreter-based evaluations suffered from the uniqueness of an implicit nature in their assumptions. Gradually, the development of more



Table 6. Neurological approaches to studies of architectural aesthetics. Source: Authors.

Studies	Analysis of emotional experience in architectural aesthetics through a neurological approach	Research goals
(Parsons, 1991)	Parsons attributed dimensions of aesthetic experience to physiological change for the first time ever.	Emotional evaluation, emotional content, and cognitive processes of architectural impulses
(Tsutsumi & Sasaki, 2007)	Evaluating the sense of aesthetics through the form of roof	Analyzing behavioral reactions
(Vartanian, Navarrete, Chatterjee, Fich, Leder, Modroño & Skov, 2013)	Effects of form and height of the roof and skylines in aesthetic judgment and decisions of avoidance/proximity	Achieving neurological processes and visual/sensory correlations in the brain
(Vannucci, Gori & Kojima, 2014)	Analyzing spatial sequence and its effects on aesthetic judgments in an intercultural form	Assessing the emotional experiences of architecture
(Bittermann & Cificioglu, 2016)	Color effect and visual perception of architecture	Quantitative analyses in a special field and laboratory conditions

complicated studies resulted in the emergence of perceptual concepts. As a result, attention shifted from sheer reliance on visual signs of architecture to perception of the relationship between an aesthetic object (architectural work) and a perceiver. After that, the problem of expressing a public feeling of satisfaction came into view based on environmental perceptions. At the same time, this problem resulted in objectivity/subjectivity polarization discussions to mislead attention from developing interpretative models based on researchers' personal interpretations. In this regard, different research paths emerged.

Hence, to answer the research questions, it is necessary to state that the main research categories of architectural aesthetics are 1) theoretical sciences and 2) empirical sciences. From a public standpoint, these two areas seek two major goals rooted in distinct specialized contexts: 1) academic nature for the development of theoretical frameworks to explain the concept of aesthetics and 2) relative acquisition of some objective/subjective indices for user evaluation of judgments on architectural works. Generally, knowing the preferences of architectural works in these two areas can express an instance of evaluation analysis classified as cognitive and/or emotional models. These studies present an interpretative or empirical instrument for perceiving the states related to an individual's mental function. They mainly try to perceive the qualitative features of a place by analyzing people's responses. Therefore, the

resultant evaluations are used as an analysis unit to develop different types of predictor models for objective/subjective qualities of the environment.

Therefore, research approaches are mainly employed to discover the reflection of one or multiple variables in evaluations (based on a researcher's interpretation type or user judgments) by using two scales as evaluation criteria: 1) a descriptive scale in interpretative studies which mainly deal with spatial configuration and physical/mental features of visual perceptions; 2) empirical scales. These are also classified as two categories: 1) value scale of cognitive studies showing that the evaluation of aesthetic qualities of the environment from the perspective of space users in order to determine the public preferences in a common sociocultural context; 2) emotional scale in perceptual studies that are mainly used to measure an individual's emotional reactions.

Regarding the answer to the second research question, it can be stated that the criteria for architectural aesthetic evaluation are affected by two conceptual elements: 1) judgment and 2) experience. Judgment is a structural evaluation of experiences between minds. It is affected by many processes and factors. To further explain this matter, it should be mentioned that interpretative studies emphasize the analysis of aesthetics based on different theoretical views with respect to the importance of "judgment". As aesthetics is an inherently subjective topic, an interpretative method considers a researcher's position to be

that of an expert in an interpretative position in the relationship with the aesthetic world of others. However, the inter-mindfulness quality of aesthetic judgments poses a challenge to interpretive studies of architectural aesthetics including sociocultural contextualization that is visualized individually. Therefore, aesthetic encounters in cognitive/emotional studies are subjectively “experienced”. They also form a part of encounters in a perceptual/social/cultural manner.

Moreover, in cognitive studies (including sociocultural models that consider the environment to be a product of an educated human’s interpretations in a social aspect), there will be no roles for biological processes and features. However, the perceptive approach strikes a more desirable balance between biological/physical components and perceptions or judgments. Thus, it seems necessary that studies consider biological/physical features of an environment to be impetuses that stimulate mental reactions related to aesthetics through perceptual processes or intervening cognitive (sociocultural) structures. As a result, it can be concluded that studies of aesthetic perception generally address “judgment” and “experience” as two interconnected topics that are able to include all cognitive, perceptive, and emotional capacities of an individual. Furthermore, evaluation criteria for aesthetic approaches must include the judgments that are simultaneously based on the interpretation and perception of an individual’s experiences. According to the research findings, future studies need a “common scale” to evaluate aesthetics in architectural works. This concept includes the biological features of humans and the physical features of the environment in interaction as necessary components. This interaction could draw attention to perceptual attributes resulting from human “experience” of an environment, *i.e.* “perceptive experience”, in the understanding of aesthetics in work. Furthermore, Berleant believes that although the necessary condition of aesthetic experience is to perceive

the environment through senses, perception will not be the sole component of cognition improving the identification of aesthetics. In fact, it is a perceptual realm that enhances awareness of aesthetics (Berleant, 2013). Saito emphasizes the importance of numerous relationships in the perceptual experience of awareness and interprets aesthetic experiences mostly through the positive outcome of a successful accomplishment resulting from an object and the mutual impact of human (Saito, 2008, 461). Therefore, assuming that the entire environment is a perceptual system, the human-architecture unity (through interaction) can be perceived as a continuous manifestation of the concept of “aesthetic experience”. This concept regards the awareness of relationships between methods of sensory functions in architectural perception as well as the corresponding action/reaction method with cognitive/emotional processes that are essential to aesthetic perception (Fig. 1).

Therefore, this study includes a general methodological context of empirical and theoretical studies to analyze the nature of judgments on architectural aesthetics within the framework of different aspects in order to identify experience-centered attitudes. According to the research findings of interpretative studies, the philosophical approach in empirical studies as well as emotional, phenomenological, and neurological approaches in their attitudes towards aesthetics in architecture focus more on the importance of human experiences (Figs. 2 & 3).

Researchers need to adopt holistic approaches to achieve theoretical proof and obtain underlying components of aesthetics in architecture. It means a combination of interpretative and empirical knowledge by which the desirable qualities of the environment and resultant values will be ready for evaluation. Hence, it is possible to observe a comprehensive outcome through the combination of positive and normative approaches in order to achieve a high analytical accuracy because

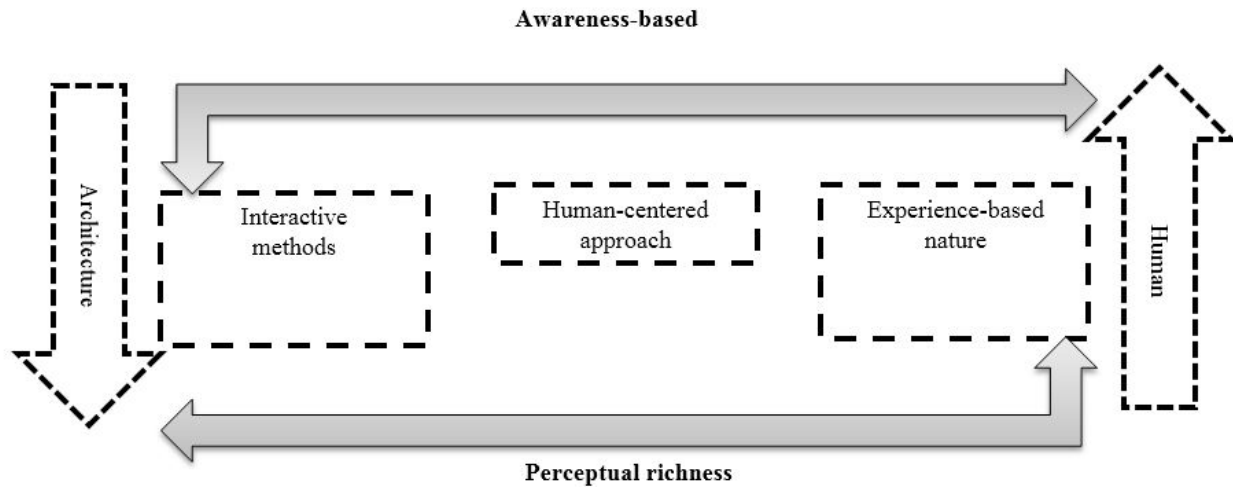


Fig 1. An overview of human-centered research approaches in architectural aesthetics. Source: Authors.

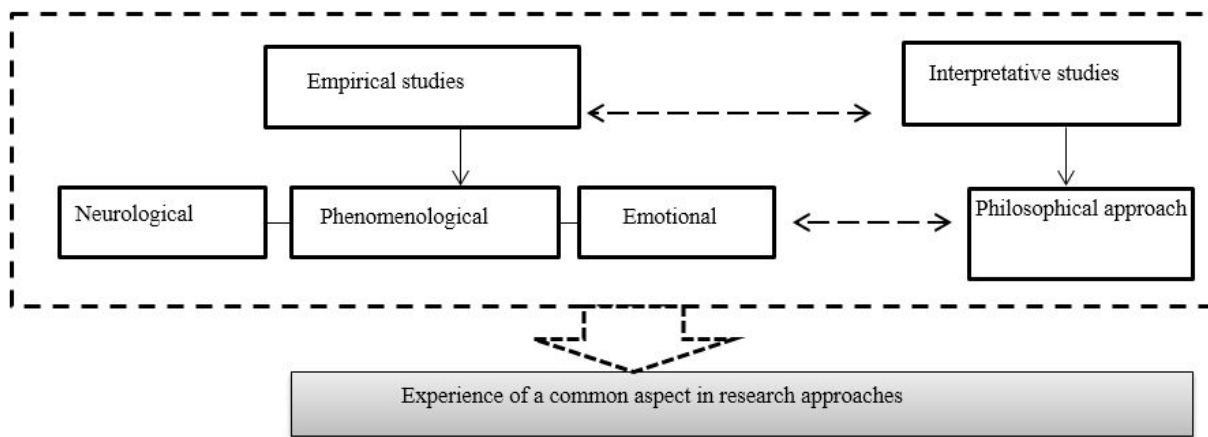


Fig 2. Experience-orientation in different research approaches. Source: Authors.

integrating different attitudes can present high potential as an exchange center to identify novel intellectual systems for aesthetic evaluations and provide the chance to propose new theoretical hypotheses based on “anthropocentrism”. Thus, methodological conventions require an in-depth knowledge of the concept of “aesthetic experience” to succeed in obtaining people’s perception of a pleasant feeling in atmospheres for success. The aesthetic attitudes are then able to be integrated into different theoretical models. They are also able to shift from merely analytical or interpretative approaches to experience-orientation focusing on “human” and to include empirical perception and

interpretive norms of judgments and evaluations at the same time.

### Conclusion

According to the analysis of research approaches to architectural aesthetics, it is impossible to consider one criterion or view dominant and the consensus is unlikely too. In fact valuating an architectural work is related to awareness, expansion of different perceptual factors, and flexibility in architectural perception. Therefore, researchers have failed to reach a consensus on the methods of evaluating aesthetics in architecture so far. This lack of organization in methodology originates from the

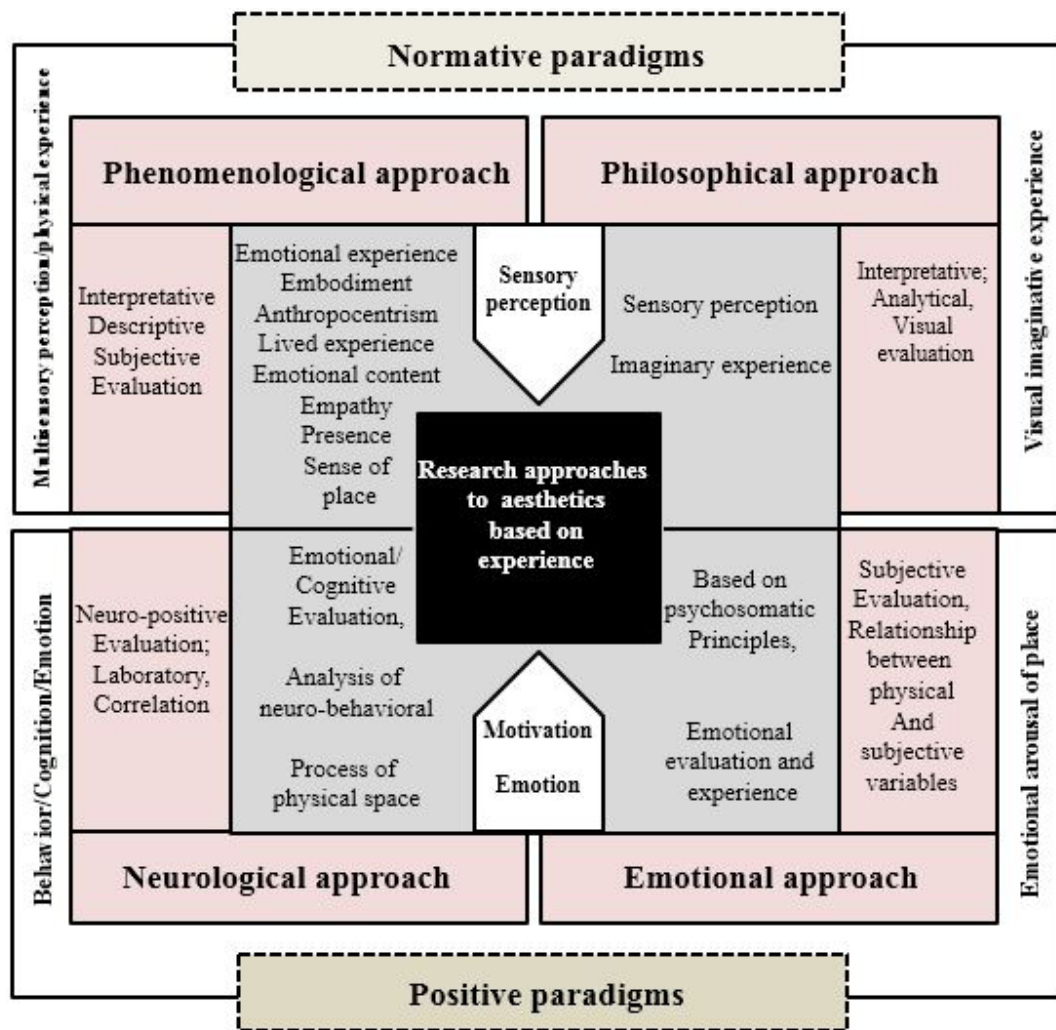


Fig 3. Structure of research approaches to aesthetics based on the human experience. Source: Authors.

ambiguity in the nature of architectural aesthetics caused by differences in analytical systems. For this reason, various types of existing studies were discussed and classified comparatively to make the identify of methodological scope possible. In fact, the reviewed approaches not only are not incompatible with each other, but they also can be complemented. Each of them can express a declaration of architectural aesthetic. In other words, each theoretical approach is still acceptable in its realm; however, it is impossible to perceive architectural aesthetics from human perspective merely by emphasizing one or multiple specific features of interconnected and complicated dimensions of aesthetics. It is necessary to regard the perception of “aesthetic experience” as a general

principle to perceive satisfaction with architectural works.

Over time, architectural aesthetics has become a complicated concept consisting of theoretical structures of interactions and inferences as well as the extraction of symbolic, historical, cultural, and social meanings, ethical requirements, and values. Therefore, the necessity of developing methods based on human “experience” includes all aspects of environmental experiences, including the perception of environmental pleasantness. At the same time, the *raison d’être* of aesthetics concept has not yet been perceived clearly, and there is no accurate scientific description regarding the nature of architectural experience. Hence, the transparency of architectural aesthetics perception phases would require further

studies on the perceived human experience of architecture.

This study emphasizes the expansion and development of a common scientific and comprehensive language as a solution to the use of interdisciplinary opportunities for the perception of architectural experience in order to be efficient in the better perception of methodological boundaries in the experience of aesthetics. In other words, it is necessary to organize more comprehensive frameworks to perceive the formation of architectural experience and better understand architectural aesthetics because a small number of empirical research paths, analyzed in this study, indicated that perception of architectural aesthetics would actually represent the perception of experience from an anthropocentric perspective.

In fact, a one-dimensional attitude towards approaches would make some evaluations of ethical judgments and interpretative theories not enable researchers to distinguish between different degrees of architectural aesthetics in human perception aspect. This analytical method and its justification take on an interpretative, one-dimensional, and researcher-centered form that leads to an abstract cognition. The truth is that such abstract justifications of aesthetics can separate knowledge

realism from people’s lived experiences, and architectural aesthetics should not neglect to identify the effective role of “experience”. Therefore, it is essential to analyze values based on “aesthetic experience” structure along with cognitive/perceptive/emotional dimensions of an architectural work based on interaction with atmospheres because future studies need to identify the real world of human and architectural works for higher levels of research significance. With these descriptions in mind, the conceptualization of approaches to studies of architectural aesthetics must exceed cognitive preferences or human perceptions, and the instant evaluation of a work (which exists in a centralized, passive, and object-oriented context) should also expand. Hence, the necessity of developing methodological areas of evaluations based on human “experience” made all environmental aspects include its desirability and human welfare improvement in practice. Research attitudes must deal with studies of aesthetics through anthropocentric approaches to the consideration of multiple and dynamic perceptions within the context of an environmental, active, cooperative, and empirical discourse because this concept requires an in-depth identification of aesthetics perception from the perspective of the “perceived human experience” (Figs. 4 & 5).

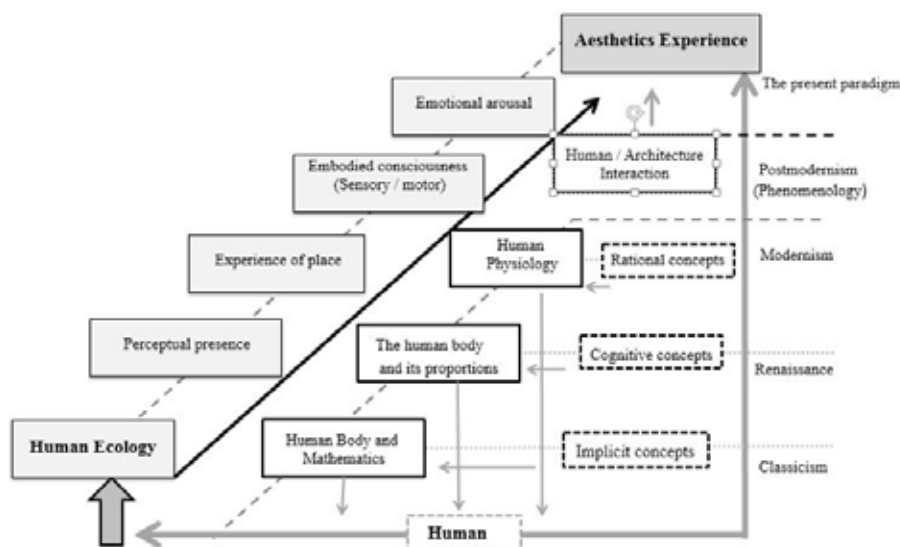


Fig. 4. The evolution of conceptual frameworks in research approaches to architectural aesthetics. Source:



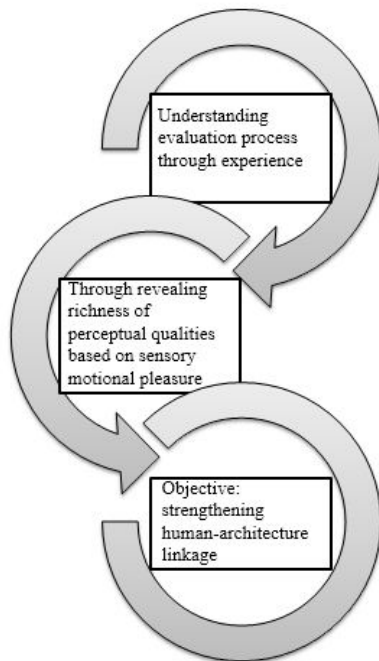


Fig. 5. The purpose of the current intellectual system in experience-based research approaches. Source: Authors.

## Endnotes

1. Studies of aesthetics in architecture originated from a separate area of analytical philosophy of art in Aesthetics in Architecture by Scruton. This study presents the most regular and extensive conceptual studies on aesthetics in architecture. Inspired by Kant's aesthetic theory, Scruton explains aesthetic experience and believes that an architectural experience is a judgment on the sensory perception of something that is known as a building, the pleasantness of which is based on the same perception (Haldane, 1998, 6). According to Scruton, the most important feature of architecture lies in façade and its correlation with ornamental arts. Scruton considers the "classic architecture" pleasant aesthetics, which modernism lacks (Scruton, 1989, 94-102). Despite the scarcity of studies, the contents of this book focus merely on aesthetics in classic architecture without any extension to the modern or contemporary architecture through a balanced outlook. Based on Scruton's attitude, Winters authored Aesthetics and Architecture and discussed the conflict between theoretical, perceptual, semantic (Goodman), and social discourses as well as philosophy of language (Wittgenstein), and an ethical view based on Kant's theory: he believes that architectural perception is based on an audience's "imaginary experience" (Winters, 2007, 205).
2. In fact, architectural function and its relation with aesthetics constitute to the potential relationships that respond to social, cultural, economic, and political forces and state temporal requirements (Carlson, 1986; Stevanovic, 2011; 2013). It also makes the achievement of a consensus on the relationship between aesthetics and usefulness nearly impossible due to different functional demands.
3. Cultural theories explain preferences in specific forms thought and developed by society, culture, and personal characteristics, emphasize evaluations formed by the identification of the environment, and focus less on reactions (Steg, Vandenberg & De Groot, 2012, 64).
4. In this approach, there are aesthetic differences due to the fact that environmental preferences are formed socially through knowledge structures that are based on education and culture (Galindo & Hidalgo, 2005, 20). Therefore, conducting these studies for the importance of education and experience can provide important information on environmental optimization (Danaci, 2012, 2015; Uzunoglu, 2012). At the same time, architectural aesthetics has entered creativity and

epistemology to seek the nature of beauty; it also plays a role in education to identify aspects of aesthetic evaluation (Mako, 2012, 4). In this approach, aesthetic evaluation is introduced as specialty-centered evaluations. Such differences are evident in the knowledge structure, especially in the studies that have compared the evaluations of experts with those of non-experts (Groat, 1982; Herzog, 1992). These differences are related to the acquisition of different knowledge structures on the path of professionalization and socialization. In fact, architects have generally formed their knowledge structures based on different constructs from what the non-architects prefer (Purcell & Nassar, 1992).

5. Globalization and regionalization are development processes that affect new outlooks of architectural aesthetics. In fact, the necessity of developing a sense of ecology for the environment focuses on the importance of developing a conscious perception, and studies address the effects of social-historical characteristics on the contemporary perception of architectural aesthetics in terms of cultural complications (Wahba, 2010). The importance of these problems includes complicated themes in relation to the environmental awareness of ecology and aesthetic principles in research areas (Kquofi & Glover, 2012). The relationship between aesthetics and ethical ideas appear to be early research contexts that regard aesthetics as the new idealization power which can practically make the development of sustainable architecture possible (Roeser, 2013)

6. Gestalt psychologists followed quantification and ranking of form and context variables in the organization of visual scope by using the "information theory" principles that would lead to formative aesthetics theories (Heath, 1968, 24). These psychologists believe that there is a direct experience of "expressive qualities" in the perception of forms and volumes. To them, these experiences do not result from the subjective association but are caused by the mutual relationship between neurological (biological) processes and environmental patterns (tension and peace) (Lang, 1987, 218).

7. Influenced by Berlyne's studies, James Russel and Mehrabian (1978) analyzed descriptive categories of emotional experiences of the environment in the 1980s and evaluated emotional states of the environment (complication, friendship, excitement, enjoyment, originality, peace, etc.) to improve knowledge. Discovering the relationship between evaluation responses and people's states, they emphasized the necessity of perceiving certain experiences such as emotional evaluations and emotional reactions of the environment more profoundly. After analyzing 105 descriptive attributes of the environment and conducting a factor analysis, they found out that pleasure (emotional value) and excitement (impact intensity) were the two main components that had the highest correlations with people's emotional reactions to the environment and represented the emotional quality model of place. After that, Ulrich's theory analyzed emotional and aesthetic reactions based on contradictions (loving/not loving) through psychological processes and human-environment interactions in the 1990s.

8. This category of empirical studies presents general theories on perception mainly based on "experience" through qualitative measurements and analyzes the relationships of environmental features such as atmosphere or emotional willingness to perceive the emotional aspect of the environment and human states (body/emotions/feelings/physique/perception). Emphasizing "embodiment" and "empathy", this category analyzes aesthetic reactions and experiences. (Robinson & Pallasmaa, 2015, 177).

9. This is an index for measuring the amount of information in a message. Entropy formulas, based on order and disorder and proposed by both Shannon and Boltzmann, are known as "aesthetics equations":  $H = K \log l$ ,  $X = -P \log P$  (Minai, 1993, 3).

10. In these studies, impetuses were conceptualized as constants, and users responded to them uniformly; therefore, the relationships between physical (objective) impetuses and psychological responses (public preferences) are analyzed without considering the potential experiences of intermediary processes (judgment factors) (Zube, Sell & Taylor, 1982; Daniel & Vining, 1983).

11. Since 2003, the Academy of Neuroscience for Architecture (ANFA) has supported "neuro-architecture" as a way of relating neurology

and analysis of behavioral reactions (cognitive-emotional processes) to an artificial environment. For instance, out of the subjects related to multisensory perception and visualization, the concept of tactile sensation has recently been playing a central role in tactile perception and visualization of architectural evaluation (Papale et al., 2016). Recent developments in neuro-imaging technologies have facilitated the temporal/spatial mappings of aesthetic experiences in the human brain and helped develop better knowledge through perceptual signs, architectural elements, and configurations that stimulate specific aesthetic reactions. In particular, this approach highlights the scientific studies of cognitive correlations of the brain (nerve)-body related to empirical aesthetics as well as sensory/motor and emotional/feeling aspects of the human experience of perceptual objects, which mainly mean "physicality" implicitly (Robinson & Pallasmaa, 2015, 162).

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