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The Memetic Evolution of Latin American Architectural Design Culture

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Abstract: Architecture is an evolutionary field. Through time, it changes and adapts itself according to two things: the environment and the user, which are the touchstones of the concept of culture. Culture changes in long time intervals because of its cumulative structure, so its effects can be observed on a large scale. A nation displays itself with its culture and uses architecture as a tool to convey its cultural identity. This dual relationship between architecture and culture can be observed at various times and in various lands, most notably in Latin American designers. The geographical positions of Latin American nations and their political situations in the twentieth century leads to the occurrence of a recognizable cultural identity, and it influenced the architectural design language of that region. The nonlinear forms in architecture were once experienced commonly around Latin America, and this design expression shows itself in the designers' other works through time and around the world. The cultural background of Latin American architecture investigated within this study, in terms of their design approach based upon the form and effect of Latin American culture on this architectural design language, is examined with the explanation of the concept of culture by two leading scholars: Geert Hofstede and Richard Dawkins. This paper nevertheless puts together architecture and semiology by considering key twentieth century philosophers and cultural theorist methodologies. Cultural theorist and analyst Roland Barthes was the first person to ask architects to examine the possibility of bringing semiology and architectural theory together. Following an overview of existing semiological conditions, this paper analyzed Roland Barthes and Umberto Eco's hypothesis of the semiological language of architectural designs of Latin American designers by examining their cultural origin. The work's findings express the historical conditions that enabled the contemporary architecture and culture study of Latin America between 1945 and 1975 to address the "Latin American model" of architectural modernism.

Keywords: Latin American architecture; culture; identity; cultural evolution; the evolution of architecture; nonlinear forms

Citation: Akıner, İ.; Yitmen, İ.; Akıner, M.E.; Akıner, N. The Memetic Evolution of Latin American Architectural Design Culture. *Buildings* **2021**, *11*, 288. https://doi.org/10.3390/buildings11070288

Academic Editors: Paula Lopez-Arce and Ainara Zornoza-Indart

Received: 25 May 2021
Accepted: 30 June 2021
Published: 3 July 2021

1. Introduction

Darwin's theory of evolution has been an important determinant affecting the development of evolutionary thought in architecture. The lack of a general theory of change has often led architects and historians to omit cause-and-effect relationships [1]. Culture influences architectural, social, geographical, technological or economic factors in any period. Architectural styles display themselves in structures using meaningful forms and shapes regarding the culture. In certain cultures, forms and patterns such as circles and symmetry have social meanings. These forms, which have their definitions in every culture, are socially unifying in the community [2]. The idea of nineteenth century evolution has created

a common field of study in which cultural and organic evolution ideas have progressed together. The element that combined these two different ideas of evolution into a common denominator was the idea of progress [3], brought to mind by the Industrial Revolution [4].

Vitruvius (80/70–15 BC) interpreted this concrete perception of cultural change as architectural structures having birth, evolution, and death processes like living things in nature and that structural details similarly evolved. However, Ibn Khaldun (1332–1406) interpreted evolution through the change of society and cities, stating that there is an ever-evolving and gradual cultural shift from nomadism to settlement, community, and urbanity [5]. In addition to the geographical discoveries and archaeological findings made in the eighteenth century, architectural historians and theorists have tried to find a common language between different styles by classifying the diversity of local and foreign architectural styles [6].

Darwin's principles of evolution were adopted in architecture, especially in studies dealing with the history of architecture [7]. When the remains of these evolutionist works are being traced, a thesis from 2010 by Bannister Fletcher appears entitled "History of Architecture on Comparative Method", which analyzed the historical production of architectural styles from an evolutionary perspective. Unlike other architectural history studies, Fletcher studied the similar relationships of these styles with each other rather than revealing a historical view of architectural styles.

Fletcher [8] compared the architectural structures made in different periods and evaluated the styles that historically contained these structures' characteristic features on the axis of geographical, geological, climatic, religious, and social dynamics. Based on Darwin's theory of evolution, Jencks [9] pointed out that it is not sufficiently descriptive to explain the evolution of the cultural and cosmological universe. He pointed out that mechanical models created from a Darwinian perspective can be more dynamic and complex than anticipated.

Basalla [6] described "evolutionary analogy" as "biological analogy" and, more specifically, Darwinian analogy. The theory of evolution, which has gained its modern face through genetics, has enriched the content of cultural evolution analogies [3]. Richard Dawkins was one of these cultural evolutionists who advocated diversity based on heredity and natural selection [3]. Dawkins has argued that the mechanism of inheritance, which allows offspring in organic evolution to bear similar characteristics to their parents, may also exist for the heritage of cultural structures. Dawkins described "memes" as "Mapper units of information" that provided the heritage of material culture and compared them to the "genes" underlying organic inheritance. "Memes" have a cultural copyist role in many fields, from music, fashion, and pottery making to techniques used in architecture [10].

By the 1960s, however, the ability of computers to solve complex accounts had created a new front of universal analogies. One of the first attempts at evolutionary analogies made in this digital space was made by Holland [11]. Holland's work has created a process of evolution that mimics Darwin's principles of natural selection. Computers imitating the evolutionary mechanism in nature transferred this evolutionary process to the virtual environment using algorithms, and by this method, it was possible to produce new architectural forms [11]. Holland's new facade to evolutionary analogies was moved into the field of architecture by John Frazer. Frazer [12] reduced the biological properties of the "gene" and "DNA" to mathematical codes, thus creating a realistic view of the process of evolution. By traversing and mutating the successful genes that survive with this method, he ensured that different architectural forms could be produced virtually without a designer [12].

Evolutionary analogies have significant potential to reveal complex processes in cultural systems. On the other hand, Kiesler's [13] and Geddes's [14] vanishing ideas sprouted the idea that material culture evolved just like an organism and that architectural culture was seen as part of the organic structure of man. Architects such as Kiesler and Geddes [14] have carried the technology-driven progressive cultural evolution models of cultural evolutionists such as Mokyr [15] and Basalla [6] in the field of architecture in various ways [16]. Technological circles have an essential role in the development of

cultural systems. Thanks to computer technology, simulated evolution moved into a digital world and evolved into a more theoretical structure through evolutionists, such as Dawkins, who worked out the mechanisms of cultural inheritance.

Interaction between culture and architecture is displayed at various times and in various names and explanations because it is impossible to imagine a designer not affected by the environment. Since the design can be described as creating an array for a purpose, it should be influenced by various things on the way (hence the designers' cultural background). Architectural styles show a clustered organization throughout the world and, in a big range, can be mentioned as vernacular. However, there is another fact: the field of architecture has a feature like a paint drop, which spreads in any direction to not only inhabit a place but also fuse to take that place's aspect. A specialist in the formation of cultural identity has two issues. The first one is the genesis of culture with three dimensions: society, individual, and genotype. The second one is memetic, which is evolutionarily formed concerning the outside world in which one lives. These explanations above the arrangement of cultural identity require different approaches to the development of architectural culture. Therefore, a study to investigate an architectural culture must comprise the designers of genetic and memetic characteristics. That is the reason why, while examining an architect's design, there are a few properties of concern: the region in which he or she was born (for the genetic codes), the school he or she is educated in, and the domain and professional district in which the designer works in correlation. The curvilinear lines forming an architectural space which the structural world mostly encounters these days bring a question: Who are the designers of these forms, and what do they have in common? The research was conducted, and the tables formed to accumulate in this context showed that the designers of those mentioned non-Euclidean forms commonly connected with Latin America in various respects, which can be correlated with culture.

The paper presented here attempts to describe some of the Latin architects' cultural identities based on Dawkins's cultural DNA mutation. The sample chosen within the scope of the research consists of designers born in the early nineteenth century. The designers who came into the world in countries mostly influenced by Latin American culture include designers whose works are listed in MoMA, New York's Modern Art Museum exhibition held in January 1943, and then in the book published about the exhibition. The place where the designers who formed the sample were born and the institution where they completed the education process, as well as the countries where they lived and the countries where they continued their professional lives, together with their architectural works, were examined within the study framework. The works created by Latin American designers right after World War II were called "extraordinary architectural works" that were admirable for artists from different cultural countries. It is within this framework that the research question posed within the scope of this research takes place. Is it a coincidence that almost all of these architectural structures, defined as extraordinary architectural works, appeared with a similar architectural language? Is there a cultural or genetic relationship between the designers of these structures that differs from designers' works in other countries in the same period? In light of these questions, independent variables regarding professional life were focused on for designers. Therefore, we established a semiological reading on the architectural works which were revealed much earlier than the practices that used digital media in design.

In the study, an evaluation is made to reflect the relationship between society and the environment, which constitutes culture, to social values based on the same characteristic. Aside from that, we chose the comparison to be analysis between the architectural works produced by Latin architects between 1945 and 1975 within the study framework. Therefore, we established a reading on the architectural works revealed much earlier than the practices that use digital media in design. For this reason, the period covered in the research coincides with the digital period. Likewise, in architectural design, which is excluded from the scope of the research period, young generation architects with similar cultural effects have been found in particular architectural works, even for digital period works.

Oscar Niemeyer demonstrated his stunning Latin American architecture with the modernist graceful curves of the civic buildings in Brazil. The capital city of Brasília is an excellent example of the idea of plasticity and the susceptibility to change absorption. Brasília adapts and absorbs the urban evolution surrounding Niemeyer's architectural complex. His architectural works were incorporated in the dynamic resilience processes of the city. This transition had physical ties to urbanism, and it became the integration of symbolic and cultural aspects in the restructuring of the image of the city.

The arrival of Europeans in Latin America started in the late fifteenth and early sixteenth centuries. Colonial settlement of the South American continent led to an intense cultural and racial exchange between Spanish and Portuguese settlers and natives. Thus, Latin architecture symbolizes this racial and cultural exchange, called "Mestizaje" in Spanish, mixing races and cultures [17]. In the early 1930s, when Swiss architect Le Corbusier started working with Latin architects such as Lúcio Costa, Oscar Niemeyer, Affonso Reidy, Carlos Leão, Ernani Vasconcelos, and Jorge Moreira, modern architecture was already established as a unique national language in Latin America. While Europe was trying to recover itself after the war, Latin American countries experienced a period of prosperity, and as a result, a suitable environment was created for the development of Latin American architecture.

This research has two goals. First of all, a semiotic study of architectural designs inspired by Latin American culture will be performed to illustrate the cultural codes of semiotics and architectural language. Regarding the conceptual framework based on the theoretical background, the MoMA book published about the architects who realized architectural designs during the focused period is almost a base for the study. Both the place where the designers are listed in the MoMA book and where those who formed the sample were born, as well as the institution where they completed the education process, the countries where they lived, and the countries where they continued their professional lives, were examined for research purposes. This semiotic research will create a connection between architecture design and the cultural code to be expressed.

Furthermore, this research focuses on the historical literature and contemporary Latin American architecture. The analysis begins with observations of the designers' lifetimes, particularly concerning their education and employment processes, and discusses the semiotic images and activities of their architectural products within the historical context. A photo survey provides a visual basis for the semiotic study of the photographs of some buildings in Latin America. The research hypothesis categorizes the pictures by context and elevation to prevent discrimination among the photographed objects. The core hypothesis of the research was structured according to the theories of two leading scholars—Hofstede and Dawkins—examining the concept of culture. Therefore, the imaginative similarity of architectural design works within Latin American buildings stems from the designers' cultural affinity.

2. Semiotics of Architecture

As with semeiotics, the interpretation of signs, the word semiotics comes from the Greek root "seme". Semiotics as a science is merely sign-based analysis [18]. The theory of signs and perception is semiotics. A symbol is something that denotes the presence of something else. A road sign refers to a guideline, and a black cat represents an immediate danger. Signs are constructed socially and can only be interpreted by an observer familiar with the codes of significance accepted in a community of people. There are all kinds of signs clustered in different types of sign systems. Interaction requires an understanding of the elements to be understood and the rules of interpretation and codes involved, whether implicit or explicit, of the signs and information. Sign theory, therefore, is necessarily an interpretation theory. Semiotics notes that many of the issues addressed in this study, such as design, culture, environment, and organization, can be viewed as sign systems and not just lane languages. These mechanisms should be considered consistent sign systems governed by their rules, codes, and conventions. Linguistic and non-linguistic sign systems

can be available. Buildings may refer to things, somewhat critically, subject to either general or the most explicit laws upon architecture as a non-linguistic sign system [19,20].

Semiotic research was founded on the philosophy of the semiotician and Swiss linguist Ferdinand De Saussure (1857–1913). He outlined the general state of language and an understanding of the circumstances under which every language exists [18]. The essence of the linguistic symbol was a subject of Saussure's synchronous approach. Understanding Europe's analysis of sign systems involved several key points [18]. Saussure characterized the linguistic symbol as a two-sided unit, or dyad. He referred to one side of the symbol as the signifier. A signifier is the most substantial part of a sign. The signified is inseparable from the signifier in every sign, according to Saussure. The denoted is a mental term [20]. In certain cases, semiotics vocabulary employs words that the reader does not readily comprehend.

Hassenpflug [21] defines urban space as having three major dimensions: physical, aesthetical, and symbolic. These systems or layers are inextricably linked to the culture that inhabits and generates urban areas. As a result, there has been a long debate about the readability of the region, inspired by popular linguists, anthropologists, philosophers, and sociologists such as Barthes [22], Lefebvre [23], Eco [24], and Gottdiener [25]. Gottdiener [26] said that sociological understanding of architecture and urban semiotic research is an "unfinished effort" for comprehending structural forces, processes, and contradictions of spatial analysis.

Umberto Eco [27] and Geoffrey Broadbent [28] made significant contributions to studying the semiotics of architecture, which encompasses the urban artifact and the social, economic, and cultural spheres that generate these objects empirically in urban design. Eco [27] examined architectural elements in terms of context and use. He developed a body of work that enabled architects, urban planners, and anyone who communicated with such practitioners to control the landscape and influence how people perceived their surroundings. Gottdiener [26] defined avenues, squares, houses, and facades as components of urban space within urban semiotics. Kevin Lynch's [29] *The Image of the City*, published in 1960, is one of the most significant semiotic references. Lynch [29] characterized the physical urban type through his reductionist approach and the legibility of spatial elements such as roads, nodes, and edges, which marked a milestone in architectural theory.

The analysis of the symbolic meanings of elements in the constructed environment is not limited to urban semiotics. For example, cognitive geography and environmental psychology research deal with the significance of built environment components either specifically or implicitly [28]. These elements are known as material objects, and as such, they serve as signification vehicles. In terms of built environments, signification can be described as a symbolic act involving a physical entity and discourse about that object. These material artifacts in urban semiotics can include elements as common as avenues, roads, tree plantings, public squares, building facades, and buildings themselves [30]. For this research, architecture will be described as that portion of the environment that is human-made. It requires, more precisely, artificially created human settlement land [27]. Architecture may refer to the architecture of the community and architecture such as houses, facades, and forms. According to Roland Barthes [30], urban semiotics analyzes cultural artifacts' connotations or social signification related to ascribed values. Eco [27] defines culture as a mode of communication in which architecture, as the nature of the built environment, plays a significant role.

3. Designers' Cultural Identities as Cultural DNA and Memetic Replication

The mechanism of selection, which is one of the fundamental principles of evolution and requires adaptation to changing environments to survive, needs a cultural inheritance, as Dawkins [10] described. This mechanism of cultural legacy takes place in a slower and more prolonged period in the early periods. It took place very quickly, and many new social dynamics emerged in the Industrial Revolution, such as population growth, transportation, wars, and political and economic crises. For example, gene pools where

successful traits enable living species to survive have accumulated over time and have increasingly contained genes with more information, depending on the population [10]. Diversity in the gene pool was the result of the interaction of the information in genes with different combinations. The diversification of architectural technology and architectural culture over time by covering various forms and functions is possible by sharing common knowledge.

Successful architectural solutions that adapt to various natural and cultural variables are transferred to the future and transformed into consciousness due to collective selection. Dawkins [10] provided an illustration of language changing through non-genetic means at a more accelerated pace than genetic evolution. Art, architecture, engineering, and technology, for example, change in a way that historically resembles rapid genetic development. Dawkins [10] believed that man was mainly governed by society through values gained and passed down. He suggested that the word "meme" defined the existence of recurrent cultural growth. Compared with others, certain memes are competitive in the meme pool, which is similar to natural selection. Dawkins [10] stated that human beings were created as gene machines and developed as meme machines. Dawkins [10] suggested that memes might be songs, ideas, catchphrases, clothes, cars, or architecture, much like how genes increase in the gene pool by leaping through sperm or eggs from one body to another, like hopping from brain to brain in a cycle that can be considered imitation in a specific context. Alain de Botton [31] stated that, concerning this principle, creativity is derived from a global pool.

On the other hand, Julier [32] suggested developing a worldwide "design culture". If a designer has a good idea, for example, he might pass it on to his colleagues, competitors, and students. If the idea catches on, it will replicate itself by moving from brain to brain [10].

Rodgers analyzed eight famous designers from various cultural centers, and Strickfaden [10] had varied educational backgrounds and personal perspectives and often followed specific strategies in their design practice due to their unique cultural DNA. Their research aimed not to identify particular factors or values in architecture but to compile and clarify some of the critical cultural components that competent contemporary designers used in their architecture. Likewise, Rodgers and Strickfaden [33] described that many of the designers interviewed already shared elements of "cultural DNA", which adds weight to the notion of such "common ground" within the design. As it happened in the late nineteenth century, designers who live in different countries and share similar purposes may design comparable structures, despite various factors such as the economy, material, and transportation. Culture has a non-negligible effect on design. Evolutionists should consider this influence to make an equivalent assessment. The schools they were educated in or the offices and cities they worked in influenced engineers' design culture [34]. Falbel [35] discussed the role of international and immigrant architects to disseminate architectural modernity through a debate on the modern Brazilian history of architecture. Cultural systems have long understood part of the transitions and migrations of human beings and the development of architecture and art. The concept of humans and culture is handled at three different levels: universal, group-specific, and individual. It is discussed in the studies related to the subject that human nature in the global cluster is genetically coded to the person, and the personality factor that develops in a personalized structure is both genetic and learned. It is claimed that the meaning of culture has a distinctive learned structure between human nature and the personality layer [36].

The structure of cultural differences measured and defined at the national, professional, and organizational levels is explained by Hofstede [36] in terms of the place of socialization. According to this, the first place where cultural values are shaped is the family. The individual starts to differentiate with the cultural texture of the family in which he was born. The cultural values of the family form the cultural composition of the individual, and the schools where they complete the education process are also instrumental in this. After training, the workplace we are in or the organizations we attend to work are also

instrumental in shaping cultural values. The meaning of culture has a distinctive learned structure between human nature and the personality layer.

4. Latin American Architecture

According to Maluenda [37], modern architecture in Latin America is an important and well-structured gateway for the reader interested in the emergence, development, and consolidation of modern architecture in general and the particular way that this movement reached the Americas.

There are two dimensions in architecture development: architectural characteristics rooted in local culture and those based on modern spatial expression and conception. Arango [38] interpreted Latin American architecture in two opposing ways. On the one hand is inserting itself into an international framework, based on an analysis of the style and form that, as elements that come from foreign influence, denies the possibility of the region to construct works with indigenous responses. On the other hand, an analysis can be made from the region's social, political, and cultural particularities, showing the development of architecture that arises from the local identity. In both cases, the object studied is the same, but the interpretation varies when changing the side from which it is observed. While the first of these criteria only considers the architecture of these latitudes concerning a universal temporal evolution without considering the particularities of the place, the second manages to integrate both aspects by analyzing the adequacy of the architecture for its time and place.

The Latin Americans and their descendants have emigrated since 1492, in addition to the original Amerindian population. The majority of immigrants to Latin America were Spanish, Portuguese, Black African, Italian, Lebanese, and Japanese. There are also large German (the second biggest following the USA), French, and Jewish diasporas in the region [39,40]. Latin Americans and their offspring can be found in almost any part of the world, especially in heavily populated urban areas. Migration destinations in the United States, Spain, Canada, Italy, and Japan are of vital interest to Latin American people. Therefore, Latin America may be defined as All Spain, New Spain, Colonial Brazil, and New France, which once belonged to the colonial empires of Spain, Portugal, and France [41,42].

Throughout the Second World War, Latin America became a destination for tourism, as "Brazil builds" started in the early post-war era when the Museum of Modern Art displayed its exhibit. This exhibition created a new national idiom in the modern international language of modern architecture [43]. The great wave of immigration into America at the beginning of the nineteenth century sparked early debate over the concept of a "melting pot" toward Americanization and cultural pluralism. The conflicts were possibly triggered by early recognition of the vital role of the intellectual immigrants and practitioners during the interwar era and shortly after, leading to political repression and nationalism in the United States. In the architectural sector, this recognition can be seen in the 1930s from architectural press campaigns or the curative side of MoMA exhibitions in the 1930s and 1940s [44].

Arango [38] presented six generations that built modern Latin America through the innovative structure in modern Latin American architecture history. Arango proposed a generational method based on the meaning of generation established by the Spanish philosopher José Ortega y Gasset. Therefore, Arango [38] identified that the generation arises from observing the different stages of life, which do not pass mechanically and continuously by the accumulation of days or years but, vitally, by age. Arango [38] established that, on the one hand, people of the same generation share ideas, beliefs, values, but that in turn, conflicting opinions coexist.

Another important element in the method selected by Arango [38] is identifying three active generations of architects that overlap in the same historical period. On the other hand, in each generation—despite having a defined temporal cutoff—the limit appears to be diffuse, because an architect can be located in an era other than the one identified from his birth date. Another of the elements that guide this structuring of the story is

that each new chapter must go back, since years like 1900, 1915, 1930, 1945, and 1960 are points that belong to two generations and are marked by the validity of both. In this way, Arango [38] recognized six generations of modern architects and their architectural and urban contributions.

The sixth generation that Arango [38] identified was the Pragmatics (1900–1915), which was characterized by the consolidation of cities, and a third generation she called Modernista (1915–1930). Next, the historian introduced the Pan American generation (1930–1945), attributing mainly the interest in urban planning to it as well as her performance in developing the consolidation of the architecture career, recognizing figures such as Alejandro Bustillo. The Progressive generation (1945–1960) was identified as the most important Latin American generation. In it, she identified Luis Barragán, Carlos Raúl Villanueva, Lucio Costa, and Oscar Niemeyer, among others. Arango [38] recognized the common characteristics of architects who mostly carried out individual works and linked architecture with other artistic currents. Finally, she established the Technical generation (1960–1975), which she characterized by thinking about forms and techniques from a common process. In this group, she included Emilio Duhart and Eladio Dieste, among others [38].

Maluenda [37] proposed to divide Latin American architects into three groups. Those of the first generation were the teachers who until the Second World War were in charge of developing a very particular and creative take-back of the precepts of the modern international movement (1930–1950) for Latin America: Barragán, Bonet, Costa, Niemeyer, O'Gorman, and Villanueva. Then, there were the architects who managed to carry out work less dependent on external influences and more linked to local vicissitudes (with representative works built between 1950 and 1960): Álvarez, Bo Bardi, Candela, Caveri, Dieste, and Testa. Finally, there was a group that, according to the editor, represented their own and autonomous disciplinary maturity, "the result of the perfect distillation of their particular circumstances", which was consolidated throughout the 1960s: Cruz, Duhart, Porro, Ramírez Vázquez, Salmona, and Velarde.

Del Real [45] defined Latin American modernism as a colonial trend that arose from contradictions with Western society. He emphasized that the Latin American architecture idea in the U.S. was politically and culturally significant early after the war. According to Del Real [45], MoMA was a crucial step beyond the features of a single display in the evolution of this history. Next came authoritarian countries (Italy, the Soviet Union, and Japan), which used their institutions as instruments for political "frank" exploitation. Capitalist powers (the United States, France, and England), which set up a second faction, encouraged tourism and trade and constructed their buildings at the disposal of "narrow undramatic patriotism". The third and final group was European social democrats (Denmark, Finland, Norway, and Sweden), who accepted the political aspect of capitalism and "the politics of their culture". It was the architecture that gathered them [45].

With his remarks, Gutheim [46] laid the cornerstone of Brazilian modernism's metonymic role. Gutheim [46] argued, "The Latin American spirit is infectious". The primary ingredient of architecture is the capability of communication. By the twentieth century, architecture started to meet with various styles with an increment in connection. Philip L. Goodwin [47] stated that the architecture of Latin America had collided with contemporary architecture when it was barely built in the near 1930s in his book *Brazil Builds: architecture new and old from 1652–1942* [47].

According to Hitchcock [43], there are several reasons for having a different design approach in Latin America. The factors affecting the design are the continent's equatorial climate in the southern hemisphere, the absence of structural steel due to its geographical location, and the ministries' desire to create a magnificent city image with the lyricism of local architecture [43]. In Latin America, architectural manner had monumental style, free plans, and curved outlines. Most of the branches of art have a connection with nature in Latin America. The psychological background of the designers, which can be called cultural design identity, brings a different aesthetic. Latin American architecture adapts

to modern language along with its cultural plasticism, named tropicalism [45]. The desired lyricism due to cultural identity was mediated through curved lines in the modern architecture of Latin America. Curved lines were frequently used not only on the plans but also on the outlines of the buildings. It was observed that significant buildings on the land used continuous lines, and their frequent use formed a curved skyline that could not be seen anywhere else in the world. The Latin American interpretation of modern architecture created their language [43]. This importance is given to establish the cause for a lyricism that controls the overall design which, in this case, alters modernism by way of contrast. The Latin American interpretation of modern architecture created their language. Geography affects design, in essence, directly through ecological and environmental reasons, which forces them to discover the limits of materials and construction. Furthermore, psychological and sociological reasons construct their architectural style using their tropical cultural identity indirectly. In this study, the cumulative research and tables encourage that this Latin American spirit, which created a new design language, infects any designer who crosses it for at least a short period in life.

5. Materials and Methods

According to the research hypothesis, the reason behind the imaginative similarity of architectural design works stems from the cultural affinity of the designers. The research hypothesis was structured by the theories of two leading scholars, Hofstede and Dawkins, examining the concept of culture. Exploring the architectural design culture of architects of a defined region led to the hypothesis that using the scholars' theory of culture via semiotics is a valuable and rare approach to finding cultural origins. For the reasons given above, the research has an original point of view in defining the architectural design culture of Latin American designers via examining their cultural roots.

This study encompasses designers who relate to Latin America by collecting information about the designers' birthplaces, the schools where they were educated, their work areas, and their significant buildings, promoting the work's assumption. To better understand architects' design approaches, which are declared here as being shaped by cultural influences, the hypothesis of this study was structured by Dawkins's theory of cultural evolution through mutation, which is explained with memes. Like the genetic codes that are transferred through DNA, cultural codes assigned by the memes can be affected by anything in life and evolve themselves accordingly in a cumulative manner. That is why the architects' design identities are shaped by the cultural substructure transmitted by genetic codes and the education they receive or their places. The definition of culture and the creation of cultural identity was examined by the specialists Dawkins and Hofstede. The focus for this research is that both scholars have similar approaches to the genesis and evolution of cultural identity.

One of the methods used to reveal the historical continuity of cultural characteristics is the mechanism of cultural inheritance. Dawkins [10] evaluated formal and functional changes in the historical process under a cause-and-effect relationship by classifying human objects as hereditary. In his book *The Selfish Gene*, Dawkins, described as a cultural evolutionist, established a strong link between organic evolution and cultural evolution. According to him, people are under the domination of culture (i.e., the influences learned and passed on to subsequent generations). For Dawkins, culture is so vital that genes, whether selfish or not, are almost insignificant in understanding human nature. Dawkins argued that the mechanism of inheritance, which allows offspring in organic evolution to bear similar characteristics to their parents, may also exist for the heritage of cultural structures. Dawkins [10] described this cultural mechanism as a cultural replicator, with memes derived from the English word memory. Dawkins identified memes as the mapper units of information that enable the inheritance of material culture and compared them to the genes underlying organic inheritance, which also showed that memes play a cultural replicator role in several areas, including fashion for clothes and diets, rituals, customs, art and design, innovation, and technology [10].

The evolution method for this study is based on other research, which explains that architects' designs are influenced by culture. Rodgers and Strickfaden's [33] project contained eight designers from different cities, which are the precedents of the contemporary design world. The reason behind these designers' design approaches and cultural influences directing them was interpreted according to designers' interests and choices. They tried to determine what the designers were affected by in the related fields, how they changed and developed their designs, and how the evolved cultures were explained by Dawkins's cultural evolution theory.

Therefore, the cultural level of society acts as a factor in determining and directing the identity of the environment created by the individuals who make up the society. The studies on "culture" draw attention to the difference in cultural characteristics that develop depending on the environment experienced and the values formed by the community living in that environment. According to famous anthropologist Hofstede [36], the results obtained from survey data from different countries in the IBM PC company involving employees from other countries, were a kind of mediated map extracting the effects of culture on human behavior. In this sense, Hofstede's cultural dimension theory shows that the diverse knowledge, beliefs, values, and attitudes that cultures possess are reflected in the ideas in the form of individual behaviors and systems, processes, and approaches in organizational settings. The reflection of the values and attitudes mentioned by Hofstede, individually or collectively, on the way they behave and their approaches is associated with cultural identity.

In this respect, Lynch's emphasis on the relationship between culture and identity is also essential. Lynch's [29] identity distinguishes any living thing or object in nature from any other living thing or entity, primarily those that are visual and auditory. He defined this as a peculiar state, enabling it to be viewed with other senses and stressing that identity is a cultural and social phenomenon. Culture is a set of ideals that varies from one group to another, consisting of traditions, views, expectations, and modes of behavior. Although it has a multilayer structure, it is not homogeneous. In studies on culture, it is stated that at the core of this stratification are values, assumptions, and beliefs which cannot be measured through observation. It is known that special measurement tools made by related branches should be used to reveal the values. More forms of behavior and cultural values among communities are measured using measurement tools related to the subject and observation. In the outermost layer, which can be observed, cultural values can be seen from the outside, such as artistic values, cuisine, folklore, and architectural works [36,48–50].

Dawkins's theory of cultural evolution structures the hypothesis of this study through mutation, which is explained with memes. Like the genetic codes that are transferred through DNA, cultural codes assigned by the memes can affect anything in life. According to Dawkins, people are under the domination of culture. For Dawkins, culture is so vital that genes are almost insignificant in terms of understanding human nature. Culture is a set of ideals that varies from one group to another, consisting of traditions, views, expectations, and modes of behavior. At the core of this stratification are values, assumptions, and beliefs [36,50]. It is known that special measurement tools made by related branches should be used to reveal the values. In the outermost layer, which can be observed, cultural values can be seen from the outside, such as artistic values, cuisine, folklore, and architectural works [48,49]. Dawkins [10] described in detail the mechanism of cultural inheritance in his 1976 book *Gene is selfish*, which takes place over a more prolonged time in the early periods. After that, it is seen that it happened very quickly with many social dynamics that emerged in the Industrial Revolution, such as population growth, wars, transportation opportunities, and economic crises. Following studies such as those by Dawkins [10] and Hofstede [36], which revealed the existence of cultural inheritance mechanisms in a theoretical framework, similar structure typologies were more often seen in architecture through cultural mappers that had moved to a digital world thanks to today's computer technology. Therefore, the period to be examined in the scope of the research is long before the digital period.

Umberto Eco [27] described the architectural object as an indicator that can convey meaning in its own right. In architecture, inferences of meaning can be made based on visual properties [51]. These inferences are made through the visible features of form, proportion, scale, many types of hardware, texture and material, color, and light. It is necessary to assume that the elements perceived in this respect are the symbols that indicate several other and often more "profound" things. Barthes is the first cultural theorist who invited architects and city planners to think about semiotics and urban thought. Semiotics can be handled within the framework of a system of signs. Sign systems should also be divided into linguistic and non-linguistic systems. The second category is architecture, and designs are a non-linguistic symbol language that can render them more or less critical and visible [19,20].

The findings are based upon both the book of Henry Russell Hitchcock [43] entitled *Latin American architecture since 1945* and the research made by the authors. The relation between culture and architecture was investigated by criticizing the cultural characteristics of Latin American architecture. The architectural works produced by Latin American designers, especially between 1945 and 1975, show significant differences from the architectural works created in the rest of the world in the same period. It is thought that this significant difference stems from the prevailing cultural DNA pool which fed or influenced Latin architects in the design process. Cultural studies mostly address cultural differences. In this study, an attempts is made to explain the differences perceived in the works of Latin American designers, with their different features compared to other architectural works produced all over the world.

For this reason, as Gutheim [46] put it, the practices of Latin American architects are defined as "extraordinary architectural work". The structures of Latin American architects, which have a most shocking appearance and differ visually, are read through semiotic analysis. The architectural structures chosen for this purpose constitute the sample with the designs of Latin American architects in the specified period because, according to the hypothesis that represents the research question, the reason behind the imaginative similarity of these works stems from the cultural affinity of the designers.

It is believed that this is not a coincidence. It is thought that the architectural works that emerged as a sample were induced by the designers from the same cultural pool. Therefore, the research hypothesis was created to prove this. With the belief that the emergence of these works could not be a coincidence, 84 designers and architectural creations were examined within the theoretical framework by the semiotics method of Eco [27]. Therefore, parameters such as the birthplace of architects with Latin American origins, where they completed the architectural education processes, where they continued their professional activities, and the dates and designs of the selected architectural works and their design cultures were analyzed.

Design, described as a mental process, diversifies form and production by being shaped by every society's ongoing behavior and attitudes. On the other hand, cognition develops with personal and cultural knowledge and then turns into behavior shaped by experience and expertise. Since the characteristics of the mind are the main subject of cognitive psychology, stimulus and mental response are explained as a behavioral response [52]. Therefore, treating cognition as a method is possible by interpreting visual materials and analyzing the messages given in the design. Cognitive science examines how we perceive, understand, store, and remember external stimuli and objects and understand how the human mind works in these cognitive processes [53].

According to Fiske [54], forming a concept is possible by coding the entity or objects of a society over time. In addition, cultural codes play an important role in interpreting the concept of culture. In its most general definition, culture, which is defined as the transfer of common factors such as knowledge, behavior, and values acquired throughout people's lives from generation to generation, is used as a tool to read architectural products in Latin America in terms of semiology. The common values of people belonging to the same culture create cultural codes that are thought and perceived similarly [52,55]. In particular,

the difference or similarity of cognition, depending on the geography of culture and intercultural diversity, caused researchers to examine the interaction between cognition, culture, and design. Therefore, the combination of individual and cultural information and the effect on cognition is seen as an important factor. Since creativity and its reflection on the design process affect each other mutually, all life processes of the designers considered within the scope of the sample were examined through a literature review. Accordingly, to show that design was used as a communication tool, the architectural works of the designers were reviewed within the scope of semiotics through the codes they had.

This research is a pioneering study regarding the Latin American architecture culture having a unique national design language. The current status of the study covers the 30 years between 1945 and 1975 when Latin American architecture emerged conceptually, and the Latin American architectural culture, which dominates architecture, especially in countries in South America, was predominantly observed. From the end of the 1970s and the beginning of the 1980s, with the introduction of new construction technologies and composite building materials into the construction industry, new architectural design languages have led to the differentiation of architecture in the cultural sense through developing communication tools. This study's final results show that Latin American architecture culture has also infiltrated into the conservative architectural understanding of different cultures. In other words, it triggered the evolution and transformation of other architectural cultures and metamorphosed them. In the continuation of this study, it is planned to examine the effect of Latin American architectural culture on the differentiation of the concept of architecture and design in the global sense.

6. Results

A human being interacts with the environment in which he or she lives, involving communication with nature and other people within the framework of the values created by the society in which he or she lives. This interaction and communication has the potential to show itself in all areas of life. In this context, the environment and affiliated society are essential in human life. When people are a community, culture emerges, and this culture includes individuals who feel that they belong to that community.

Progressively, Latin America was gaining a place in these stories, which began to include those experiences that had been most striking from the international level and that, in turn, could be incorporated into the story without altering the idea that the historian intended to build. Even MoMA's exhibitions and their catalogs, namely Brazil Builds (1943) and Latin American Architecture since 1945 (1955), which included vastly more varied displays, did so despite viewing the region's rapid development with admiration and hope from a gaze that did not seek to reduce its distance, showing modern Latin American architecture as a good example of imported models with some local dyes without ever showing a conflict with the image that, until then, had built the official historiography of modern architecture. However, how would one expect that the regional particularities of modern architecture were accurately recognized if they were not even considered by Latin Americans themselves to be within their history?

The research findings express the historical conditions that enabled the contemporary architecture and culture study of Latin America between 1945 and 1975 to address the "Latin American model" of architectural modernism. The projects we analyzed were selected from the projects before the digital age within the research context. We are in the age of communication, and the whole world has turned into an almost global village. Since the structures designed worldwide can be easily observed and examined by all designers via the internet, as Botton [31] and Rodgers and Strickfaden [33] stated, all architects could share cultural DNA from the same gene pool. Consequently, creating a similar hypothesis for today's architectural design environment can be misleading. The most significant similarity among Latin American architects coincides with the period we examined within the most shocking image research scope, as Gutheim [46] had stated. Of course, the factors that cause this environment should not be forgotten. The fact that the craft in the

reinforced concrete building manufacturing process was relatively cheap compared with other countries in the examined period was an essential factor [45]. In Tables 1 and 2 below, summaries of information about the life examples of the designers and the architects who designed these building samples are compiled. Accordingly, 84 designers' life information, examined in detail regarding the sample chosen within the scope of the research, is summarized in Table 1.

Table 1. The list of the designers and the summaries of their lives.

Designer Number 1–28				Designer Number 29–56				Designer Number 57–84			
Designer and Birth Date	**BP**	**GUP**	**WP**	**Designer and Birth Date**	**BP**	**GUP**	**WP**	**Designer and Birth Date**	**BP**	**GUP**	**WP**
José Luis Delpini, 1897	AR	AR	AR	Emilio Duhart, 1917	CL	CL	CL	Santiago Agurto Calvo, 1921	PE	PE	PE
Jorge Ferrari-Hardoy, 1914	AR	AR	AR	Francisco Pizano, 1926	FR	CO	CO	Mario Bianco, 1903	IT	IT	PE
Rafael (Raphael) Graziani, 1926	IT	AR	AR	Gabriel Serrano Camargo, 1909	CO	CO	CO	Luis Miró Quesada Garland, 1914	PE	PE	PE
* Le Corbusier, 1887	CH	CH	FR	Mesa Gabriel Solano, 1916	CO	CO	CO	Enrique Seoane Ros, 1915	PE	PE	PA
Luis Miguel Morea, 1921	AR	AR	AR	Bruno Violi, 1909	CO	IT	CO	Miguel Ferrer Osvaldo, 1915	PR	US	PR
Amancio Williams, 1913	AR	AR	AR	Elias Zapata, 1928	CO	CO	CO	* Henry Klumb, 1905	DE	DE	PR
Claudio Caveri, 1928	AR	AR	AR	Germán Samper Gnecco, 1924	CO	CO	CO	Osvaldo Luis Toro, 1914	PR	US	PR
Sergio Wladimir Bernardes, 1919	BR	BR	BR	Laureano Forero Ochoa, 1938	CO	CO	AR	Guillermo de Roux, 1916	PA	US	PA
Oswaldo Arthur Bratke, 1907	BR	BR	BR	Max Abramovitz, 1908	US	US	US	Edward Durell Stone, 1902	US	US	US
* Roberto Burle Marx, 1909	BR	BR	BR	Max Borges Jr. 1918	CU	US	CU	Antoni Bonet i Castellana, 1913	ES	ES	ES
Lúcio Costa, 1902	FR	BR	BR	Aquiles Capablanca, 1907	CU	CU	CU	Guillermo Jones Odriozola, 1913	UY	UY	UY
* Lucjan Korngold, 1897	PL	PL	PL BR	Wallace Kirkman Harrison, 1895	US	FR	US	Raúl A. Sichero Bouret, 1916	UY	UY	UY
Rino Levi, 1901	BR	BR	BR	Antonio Quintana Simonetti, 1919	CU	CU	CU	Julio Vilamajó Echaniz, 1894	UY	UY	UY
Icaro de Castro Mello, 1913	BR	BR	BR	Alberto T. Arai, 1915	MX	MX	MX	Eladio Dieste, 1917	UY	UY	UY
Henrique Ephim Mindlin, 1911	BR	BR	BR	Francisco Artigas, 1916	MX	MX	MX	Moises F. Benacerraf, 1924	VE	US	VE
Jorge Machado Moreira, 1904	FR	BR	BR	Luis Barragán, 1902	MX	MX	MX	Guido Bermudez, 1925	VE	VE	VE
Oscar Niemeyer 1907	BR	BR	BR	Felix Candela, 1910	ES	ES	MX	José Miguel Galia, 1919	AR	VE	VE
Affonso Eduardo Reidy, 1909	FR	BR	BR	* Max Cetto, 1903	DE	DE	MX	Carlos G. Guinand, 1925	VE	VE	VE
Marcelo Roberto, 1908	BR	BR	BR	Enrique de la Mora, 1907	MX	MX	MX	Martin Vegas Pacheco, 1926	VE	US	VE
Milton Roberto, 1914	BR	BR	BR	Ricardo de Robina, 1919	MX	MX	MX	Carlos Raul Villanueva, 1900	UK	FR	VE
* Ruy Ohtake, 1938	BR	BR	BR	Juan O'Gorman, 1905	MX	MX	MX	Tomás José Sanabria, 1922	VE	VE	VE
Paulo Mendes da Rocha, 1928	BR	BR	BR	Jaime Ortiz Monasterio, 1928	MX	MX	MX	Fruto Vivas, 1928	VE	VE	VE
Aron Kogan, 1924	BR	BR	BR	Mario Pani, 1911	MX	FR	MX	Sergio Musmeci, 1926	IT	IT	IT
Marcos Acayaba, 1944	BR	BR	BR	Augusto Pérez Palacios, 1909	MX	MX	MX	Lina Bo Bardi, 1914	IT	IT	BR
João Filgueiras Lima, 1932	BR	BR	BR	Alejandro Prieto, 1924	MX	MX	MX	Álvaro Siza Vieira, 1933	PT	PT	PT
Paulo Antunes Ribeiro, 1905	BR	BR	BR	Juan Sordo Madaleno, 1916	MX	MX	MX	Francisco Salamone, 1897	IT	AR	AR
Eduardo Longo, 1942	BR	BR	BR	Leopoldo Fernandez Font, 1938	MX	FR	MX	* Leopold Rother, 1894	PL	DE	CO
Jorge Costabal, 1918′	CL	CL	CL	Javier Senosiain, 1948	MX	MX	MX	Alejandro Zohn, 1930	AT MX	MX	MX

* The seven designers mentioned in this study.

Table 2. Sample projects of designers (row numbers are matched with Table 1).

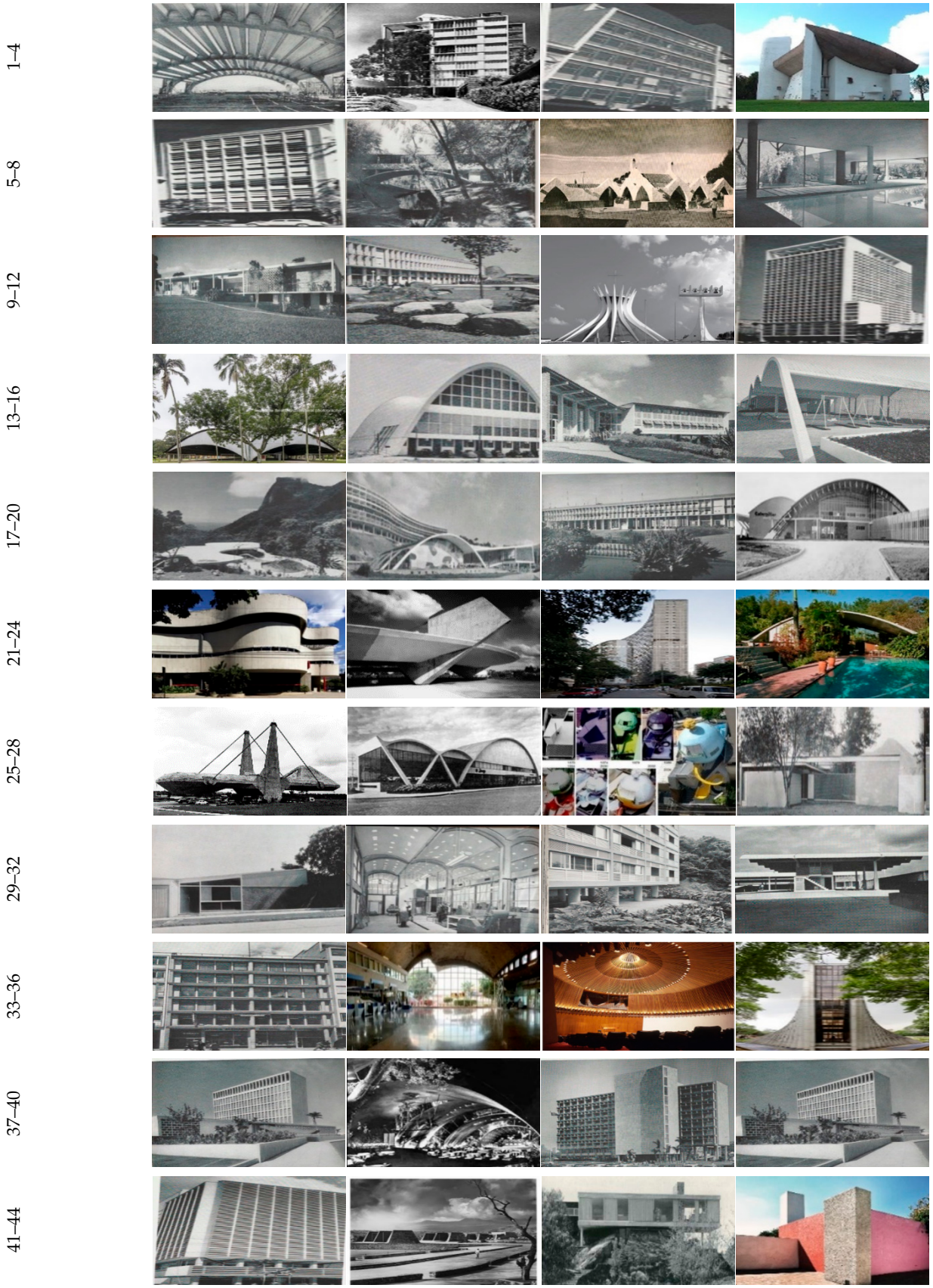
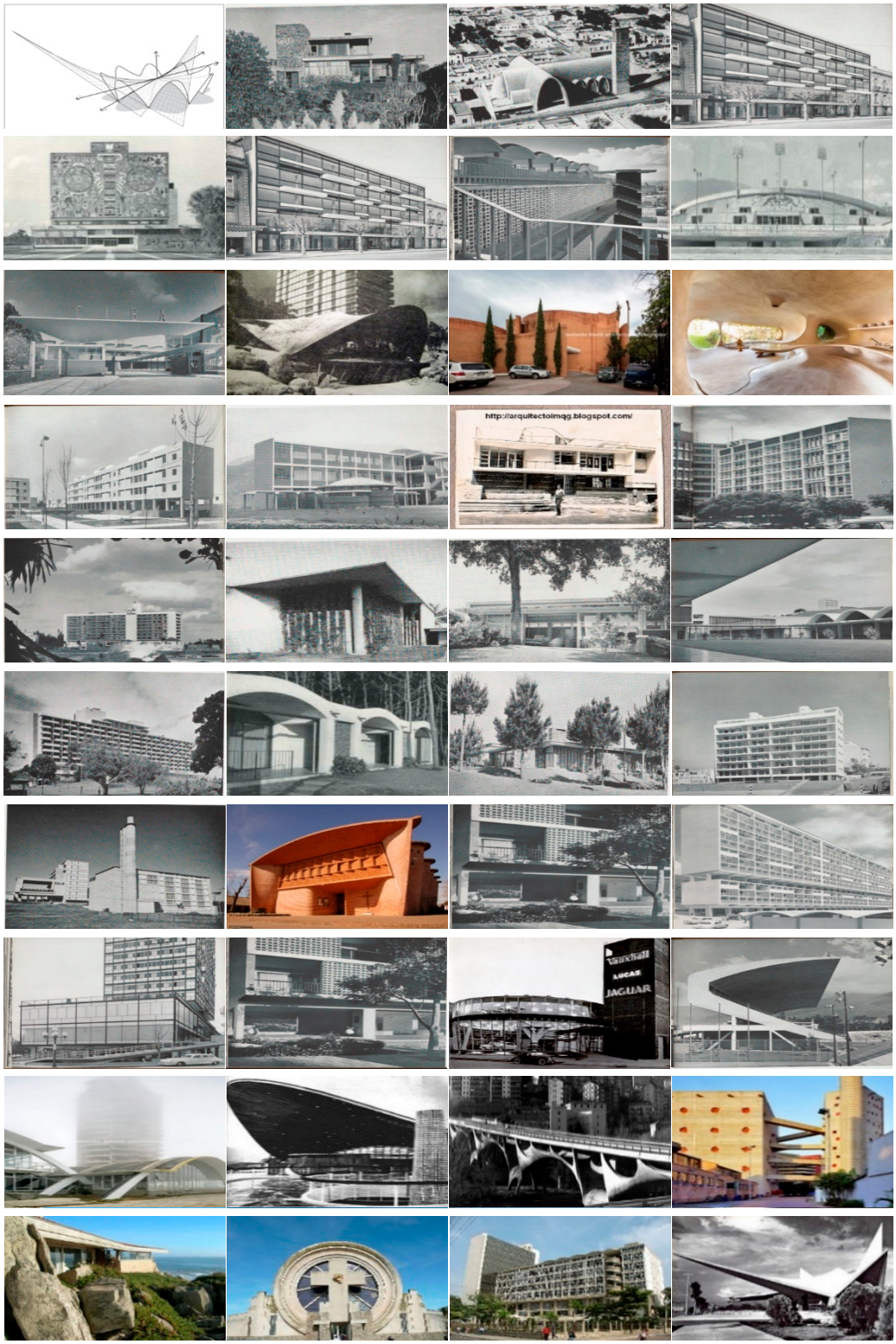


Table 2. *Cont.*



Aside from that, the design examples that give the impression of the extraordinary architectural works selected to form the sample are shown in Table 2. A name list of the sample designer projects is listed in Table 3. The designers' names and their birth dates, birth places (BP), graduated university places (GUP), and work places after their graduation from university (WP) are summarized in Table 1. According to the International Organiza-

tion for Standardization (ISO), a two-letter country code represents all countries based on the International Naming Convention in the table below. Country abbreviations include the following: Argentina = AR, Austria = AT, Brazil = BR, Chile = CL, Colombia = CO, Cuba = CU, France = FR, Germany = DE, Italy = IT, Mexico = MX, Panama = PA, Peru = PE, Poland = PL, Portugal = PT, Puerto Rico = PR, Spain = ES, Switzerland = CH, United Kingdom = the UK, Uruguay = UY, Venezuela = VE, and the United States of America = US.

Table 3. Name list of the sample projects of designers.

No	Sample Projects of Designers						
1–7	S. I. T. Spinning Shed Pilar	Jorge Apartment House	E.M.S.A. Building	Chapelle Ronchamp	Edificio Esso en Buenos Aires	House for Alberto Williams	La Casa Urtizberea
8–14	House of Dr. Souza	House for the architect, A. Morumbi	Santos Dumont Airport	Cathedral of Brasília	C.B.I. Praga Ramos de Azevedo	Tecelagem Parahyba	Pool, Department of Sports
15–21	House for George Hime	Children's Clinic Cidade Universitaria	House for O. Niemeyer	Primary School and Gymnasium	Santos Dumont Airport	Caterpillar Industrial Building	BANESPA Building
22–28	Museu Brasileiro de Escultura	Demoiselle and caravelle buildings	Casa Milan, Cidade	Exposition Center of the Bahía	Building for the exhibition	Casa Bola	House for Juan Costabal Calle
29–35	House for Sra. Marta H. de Duhart	Clark's Chicle Factory	Housing Development	Building Workshop and Bus Station	Edificio Smidt Carrera	Aeropuerto Olaya Herrera	Biblioteca Luis Angel Arango
36–42	Capilla Asuncion, Antioquia	American Embassy	Cabaret Tropicana	Office of the Comptroller	American Embassy	A. Perez Beato Retiro Odontologico	Frontons University
43–49	Casa para Federico Gómez	House for Gral. F. Ramirez	Los Manantiales	House for Calle del Agua	Church of La Purisima	Edificio Valenzuela	Central Library University
50–56	Edificio Valenzuela	President Juarez Urban Housing	Olympic Stadium	Ciba Laboratories	Hotel El Presidente, Acapulco	Iglesia De La Resurrección Del Señor	Organic House
57–63	Matute Housing Development	Department of Architecture	Huiracocha House	Apartment House	Cakibe Hilton Hotel	Church of the Blessed Martin Porres	Teodoro Moscoso Santurce House
64–70	School of BBA Universidad	El Panama Hotel	Edificio Radio el Sol Gabriel Berlingieri House	Casa Odriozolo, House	Rambla and Guayaquil Apt. Houses	Faculty of Engineering	The Church of Saint John of Ávila
71–77	Montserrat Apartment Building	UH Cerro Grande	Polar Building Plaza	Montserrat Apartment Building	Edificio Angloven	Olympic Stadium Ciudad Uni.	Hotel Humboldt
78–84	Club Tachira	Musmeci Bridge	SESC Pompeia	Boa Nova Tea House	Monumental Cemetery Portal	Edificio Nacional Barranquilla	Adolfo López Mateos, Guadalajara

6.1. Le Corbusier (Charles-Édouard Jeanneret-Gris)

When we focused on the life processes and works of the 84 designers selected as samples, it was understood that seven of these designers drew a scheme that supported one of the research hypotheses with their architectural designs. The seven designers mentioned are marked in Table 1 with a * symbol. Born in 1887 in Switzerland, Le Corbusier was the first sample, as seen in Table 1. In 1930, he became a French citizen. He completed his studies in the La Chaux de Fonds School of Art in Switzerland and was involved in European, Japanese, Indian, and North and South American buildings for five decades.

Le Corbusier also had a keen insight, recognizing modern waves of political dislocation as a turning point in a newly mechanized society to create original architecture and urban experience [35]. Le Corbusier, who conducts his profession at 35 rue de Sevres in Paris, France, has designs in different countries outside of this one. Chapelle Notre-Dame-du-Haut in Ronchamp, which was built in France between 1950 and 1955, differentiates itself from the structures encountered in other cultures with its unique plastic effect, like the structures of Latin designers. This is read from both the planning scheme and the mass formation of the building, which was initially designed under the influence of the cultural factors mentioned by Hofstede [36] and Dawkins [10] for its unique and characteristic appearance.

It is difficult to guess that it is a church structure for someone who sees the Ronchamp Chapel for the first time. However, the sharp image of this building does not allow much to forget once it is seen. According to Kant's theory, an image is a subjective form of representation. The image records how X sees Y [56]. The image's creation is only the first step, and the subject's orientation has an important impact on the image's creation. "Photography is one of the favorite and imaginative moments", says John Berger [56]. Then, it creates an immanent reproduction through the existence of the individual who sees or experiences it. Baudrillard [57] also thinks that "image, meaning, aesthetics, culture transforms into a purely sign regime and replaces the object and gradually cuts people's relationship with objective reality". The building itself is something else, and its photo is something else [58]. Maybe that's why Le Corbusier, as Beatriz Colomina [59] explained, also included topography in the picture, since things around the building continue to change. He accepts photography as a medium and continues to design based on it.

Aside from that, Villa Savoye was one of Paris's most prestigious housing projects and was constructed between 1929 and 1931 by Le Corbusier at the beginning of the twentieth century. He completed an apprenticeship with architects such as Auguste Perret and Peter Behrens during a series of trips to places including Munich, Vienna, and Paris, where he completed his vocational training process. It is thought that Le Corbusier, who had the chance to take a role in different architectural cultures, enjoyed the advantages of these cultural differences from the original architectural works.

In the design process described by Dawkins [10] and Botton [31] and supplemented by various cultural pools, it was observed that Le Corbusier reached a synthesis in its original structures designed through feeding from different cultural pools. Villa Savoy and the Unité d'Habitation building were built in Marseille in 1945. When we examine the structures of Pedro La Plata, it is possible to read these uniquely characteristic imaginary features that are not found in most designers and in all other buildings. Here, it is meant to be unique and to observe different imaginative (creative narrative) features in the same designer's structures. The reason behind Le Corbusier's success is seen to be his continuing professional life in other cultural pools. Therefore, Le Corbusier and his structures come to the fore as a designer who realized his theory of vocational education, the doctrine of the learning expressed by Hofstede [36], and the effect of different cultures on Latin life.

6.2. Roberto Burle Marx

As a sample, modernist designer Roberto Burle Marx, presented in Tables 2 and 3, made similar imaginative designs with the works of other Latin architects and had the opportunity to work with Oscar Niemeyer on various projects. Roberto Burle Marx of Brazil (1909–1994) was one of the twentieth century's most talented landscape architects (Table 1). He was born in 1909 in Brazil to a Brazilian mother and a German father. There are various works of the artist's architecture, from landscape architecture to painting, from sculpture to theater design, and from carpets to jewelry. When examining the Landscaping for Santos Dumont Airport project in 1940, whose photo is shown in Table 2, it is thought that the minimalist attitude reflecting the architectural character of Germany, which is one of the representatives of the modern architectural movement observed in many other projects, is due to cultural characteristics. Although he completed his vocational education process and professional life in Brazil from birth, it is believed that the design of projects

in different imaginative examples, compared with the works of other Latin architects in a similar period like Le Corbusier, was due to the genetic transfer of German culture to him. It was observed that the reason that his designs were different from others and brought him this success was due to their design power, which was supplemented by both the genetic pool and the cultural pool.

6.3. Lucjan Korngold

Another designer who draws attention to the sample in Table 2 is the Polish architect Lucjan Korngold, born in Warsaw in 1897. He studied at the Faculty of Architecture at the Warsaw University of Technology in the early 1920s (Table 1). After completing his vocational education in Warsaw in 1923, and after continuing his career in Warsaw for a while, he had the opportunity to work with his local professors by settling in Sao Paulo with his family in 1939. He then acquired Brazilian citizenship in 1949 [60].

At a specific time in the history of Polish architecture, the view of Lucjan Korngold on architecture was formed. Although architects wanted to find a national style at the beginning of the twentieth century, fascinated by academic classicism and impacted by Polish ornamental art, at the end of the first and second decades of that century, avant-garde trends became increasingly popular. Polish designers discovered that Le Corbusier, Soviet constructivists, and Walter Gropius influenced Bauhaus. In Warsaw and other Polish cities, early buildings were planned by the laws of modernism and significant variant features (URL 1). In the 1930s, Korngold designed several villas and townhouses. The vibrant capital, wealthy businessmen, and officials required a lot of private and office houses. Korngold built homes with the stylishness needed by his consumers in cooperation with the architects of Warsaw, such as Juliusz Żórawski, Maksymilian Goldberg, Jerzy Gelbard, and Romans Sigalin (whom he worked with at the beginning of his career). The war disrupted his career in Warsaw in the 1930s. In December 1939, together with his family, he flew to Rome and, six months later, to Brazil. As soon as possible, the architect decided to begin working there [60]. Intellectual theories of European modernist architecture have influenced the designs of such an exotic place since the late 1920s. Knowledge gained on how innovative ideas were accomplished due to European architects emigrating to South America and returning to Rio de Janeiro and São Paulo after getting educated in European universities [61]. After completing his vocational education process and a part of his professional life in Poland, Korngold settled in the Latin country (after 40 years of age) and lived in Brazil. In the words of Hofstede [36], he immigrated to the Latin country after the cultural structure became ossified.

6.4. Ruy Ohtake

Ruy Ohtake, who spent all his life in Brazil in 1938, stands out among the other designers in the sample, with his works confirming the research hypothesis. Architect Ruy Ohtake is the son of Japanese visual artist Tomie Ohtake, who was born in Kyoto. His father also was an engineer. His Japanese mother, the famous Tomie Ohtake, migrated to Brazil with her husband Ushio Ohtake two years before Ruy Ohtake's birth and was awarded the Order of Cultural Merit in 2006. Ruy Ohtake studied architecture and graduated in 1960 from the University of São Paulo. Japanese architecture attracted attention to traditional houses, and the Japanese have always attracted attention with their unique designs. Ohtake draws interest with his distinctive designs in modern architecture [62].

The semi-moon-shaped Hotel Unique, Hotel Renaissances, and the Edifício Santa Catarina Commercial building on Avenida Paulista are examples of his projects. Ohtake's innovative concepts could be recognized by his intense sculptural forms and the bold use of color, often generating a sense of surprise. One of the questions raised by interviews with Ruy Ohtake was the most critical influence in the study. His answer was "Form/Shape: Oscar Niemeyer; color: Georges Braque and Tomie Ohtake; Trace/Trait: Pablo Picasso" [63]. As can be understood from the interview with him, Ohtake offers an imaginative difference in his designs by synthesizing the effect of Japanese culture, which he embodies with a

genetic advantage, with the structure he gained from the Latin cultural pool where he lives. Aside from that, traces of traditional Japanese culture are found in the interior design of many buildings.

6.5. Max Cetto (Max Ludwig Cetto)

After graduating from the Darmstadt University of Technology in 1926, Max Cetto worked with Hans Poelzig in Germany and then worked on the New Frankfurt project as an engineer-architect. He left for San Francisco in 1938 and worked with architect Richard Neutra. Love for the natural beauty that he learned from Neutra is evident in his handling of the Jardines del Pedregal [64]. Cetto married to Gertrud Catarina Kramis in 1940. He was settled in Mexico, and in 1947 became a Mexican citizen. Max Cetto was born 1903 in Koblenz, Germany and died 1980 in Mexico City. He fled fascism and lived in the USA and then in the Mexico.

In the 1940s, when Mexico encouraged functionality, Max Cetto synthesized rational architectural expression with a sculptural feeling and tried to integrate architecture into nature and landscape [65]. Author Begoña Uribe [66] spoke on the architectural work of Cetto: Radical architecture could constitute a stone monument of the bold German state art for centuries precisely because of its objectivity, which is contrary to all sentimental individualism, its heroic simplicity, and its constructive fervor, but above all its unrelenting and pure formal will [66]. According to Begoña Uribe, Max Cetto, who gave a new impetus to the architecture in Mexico, naturally brought the reflections of German culture in architecture. As can be observed in the "House for the architect Calle del Agua" project in Table 2, built in Mexico in 1948, it is possible to perceive the similar effects of many architectural designs. Max Cetto, who settled in Mexico at the age of 37 and continued his remaining life and architectural identity in this country, is considered the founder of modern Mexican architecture for all these reasons. Carrying his genetic and cultural codes with him, Cetto successfully reflected his creative power, which synthesized with its new environmental and material information in its designs. Cetto was also included in the courses of different universities with its broad knowledge of modern architecture and the cultural continuity approach [43].

6.6. Henry (Heinrich) Klumb

The Deutscher Werkbund (German Association of Craftsmen) influenced Klumb's design education in Germany, and he graduated from the Staatliche Bauschule School for Architecture in Cologne in 1926. At the age of 22, in 1927, Klumb emigrated to the U.S. He worked at Taliesin in Spring Green (Wisconsin) as one of Frank Lloyd Wright's first apprentices (1929–1933). During his training with Wright in 1931, Klumb held an exhibition of Wright's work in Europe. In 1937, Klumb was made a resident of the United States [67–69] and worked together with Louis Kahn and Louis Metzinger. Klumb, a German-American architect, attempted to create a Puerto Rican heritage that existed simultaneously within European modernist architecture and beyond it [69]. Klumb's "nomadic" architecture education (1905–1942) rooted him to the European Modern Movement in a profound commitment [70,71].

Klumb aimed for something more "humanistic" on a different scale than the recent Bauhaus trends in Europe [72]. When he left Germany, his friends called him "Klumbumbus" for his willingness to discover new worlds. Also, he was called as "Lloyd of Northern Germany" because of his appreciation for Frank Lloyd Wright's works [73]. According to Otero [72], Klumb was an architect who had mastered the art of recognizing the spirit of a site by identifying and interpreting its current conditions, such as its geography, topography, natural resources, and inhabitants. As a kind of chameleon, Klumb supported the work of Wright, Kahn, and Neutra, thus retaining a distinct identity as a planner and constructing houses that would help a collective identity [74]. As a result, as Klumb's colleagues in Germany expressed, the personality shaped by the desire to discover different environments and cultures was reflected in the designer's identity and showed his face in

his architectural works. If we consider this as one of the underlying reasons for Klumb's professional achievements and diversity, it is thought that the other important reason stems from the culture he carried, starting from the genetic perspective and shaped by the architectural education process.

6.7. Leopold Rother (Leopold Siegfried Rother Cuhn)

Rother was born 1894 in Wrocław, Poland, died 1978 in Bogotá, Colombia. He was a German-Colombian architect, urban planner, and educator. He graduated in 1920 from the Higher Technical School of Berlin—Charlottenburg with his diploma in architecture and engineering. In 1936, he moved to Colombia. He was appointed Deputy Architect of the Directorate General of National Buildings for the Technical Section of Architecture in Colombia. In 1938, he was appointed the professor in charge of the Chair of Introduction of Architecture in the previous year of the Faculty of Architecture of the National University of Colombia. In Table 2, and built in 1945, the Edificio Nacional Building carries the traces of the distinctive Bauhaus German architectural culture from an imaginative perspective.

7. Discussion

Architects such as Oscar Niemeyer, Félix Candela, Clorindo Testa, Amancio Williams, Raúl Villanueva, and Luis Barragán, with the formalism of their architectural products, such as Eladio Dieste in Uruguay and Rogelio Salmona in Colombia with their brickwork, are presented as the first-rate promoters and the protagonists among the others in Latin America by most scholars [37,38,75].

The avant-garde movements of the early twentieth century emerged as a reaction to the architecture of the revivals and sought to create works appropriate to modernity, proposing a new and different relationship with history. From an anti-historical stance, they rejected the past architecture as a source of contemporary architectural design, and they offered to start from scratch, turning their gaze to the present and the future. At this point, the Bauhaus effect is an important issue that should be examined as to how modern art and avant-garde movements brought together certain cultural quests with new ways of architectural design. It is possible to say that the concepts of architecture and even urbanism in this period were influenced by the modern architectural movements in the Bauhaus and other similar architecture schools and equally contributed to the formation of Latin American architecture and designers. Likewise, the outstanding design by Lucio Costa and Oscar Niemeyer for the Brazilian Pavilion presented at the New York International Fair in 1939 and the talent of a host of architects pointed out the future path of modern Latin American architecture. The praise of the architects and the highlighting of their influence are recurrent in the Latin American architecture story. Thus, Niemeyer is recognized as the most enthusiastic promoter. Roberto Burle Marx is seen as the most original landscaper of our century. Together with architects Affonso Eduardo Reidy and Sergio Bernardes, they were in charge of making Brazil the main promoter of modern architecture in the region. Amancio Williams possessed projects of boldness and originality that are hard to beat.

Many other architects and works, such as Rogelio Salmona and Carlos Raúl Villanueva, the main supporter of modern architecture who drew international attention with his overflowing imagination, constitute the Latin American architectural culture, and they have also been examined through semiotic analysis within the scope of this research. Also, the MoMA book was referred, which was published about the architects listed in Tables 1 and 2, includes designs inspected during this research. The perfection of proportions, their search for the unusual, and the constantly renewed visual and plastic experiences were observed and analyzed semiotically through the sample projects in Tables 2 and 3.

Curtis [76] does not deny the European and North American origin of modern architecture in Latin America. However, he establishes that it began to present heterogeneous regional characteristics interacting with the heritage of various cultures practically from the beginning with its rapid expansion, a reality that cannot simply be ignored within a

story that seeks to explain the development of this architecture. Always striving to build a history of modern architecture that evidences this diversity, Curtis [76] incorporates Latin America, where this region takes center stage, mentioning a considerable number of architects and works. Curtis [76] addresses the two decades after the Second World War, incorporating, in addition to some architects, such as Barragán, whose work he elaborates on, Mario Pani, Teodoro Gonzáles de León, Augusto Álvarez, Félix Candela, Enrique del Moral, Carlos Raúl Villanueva, Antonio Bonet, Amancio Williams, and Clorindo Testa, among others, and he also presents works closer to contemporary works, making mention of Eladio Dieste, whom he praises for the use of local technology, Ricardo Legorrotea, Teodoro Gonzáles de León, and Rogelio Salmona.

The heritage of various cultural interactions mentioned by Curtis [76] involved reading some of the designers' architectural images semiotically. Thus, one of the reasons behind this interaction was seen to be the birthplaces of the designers. Therefore, some of the designers born in or moving from Europe and Japan were easily noticed. When cognitive behavior is considered in the architectural design process, it provides a solution to a problem using cultural and behavioral practices and mental representations (images). Structuring a design entails a certain problem-solving cycle. Therefore, conceiving a problem in the mind is an important factor affecting the cognitive design process [52]. At this stage, elements such as memory, imagery, and problem-solving are effective in the individual's design action [52,77].

Buildings are semiotically living organisms. In Algerian Berbers, the southern outer wall, which receives light, is left to the men to communicate with the public. The northern inner wall is reserved for women, as it is suitable for weaving and housework. The house is an organism, as expressed by the gases coming out of the fireplace, the water discharged from the sewer, the looks from the windows, and the actions performed with the door. This organism feeds on wood, oil, and electricity. The presence of Atlantis in Europe since the ancient writers means rebuilding the ideal city and uniting humanity on earth instead of in the sky, so much so that Plato wrote that the legendary continent Atlantis in the west could be reached by passing from island to island. This legend of Atlantis would be one of the symbols of the lost paradise and ideal city in the golden age of humanity when the gods stood close to people. Today, this new world sign has been represented in many different ways in many films, especially in J.R.R. Tolkien's film industry hit "The Lord of the Rings". The discovery of the new continent is a place of salvation for many, where everything is possible, personal or social dreams come true, and the reconstruction of the ideal city woven with architecture and art people have longed for for centuries can be built [78]. When the American continent is taken as an indicator, Latin American architecture in the south and north of the continent expresses that legendary and ideal city that Europe has longed for since the first age.

According to the theoretical background that constitutes the research's conceptual framework, the person's behavioral pattern is shaped by the cultural codes that shape his or her cognitive and personal structures. Therefore, since it is thought that the cultural texture in which the designers were born within the scope of the sample, the spirit of the environment and the time they live in, the schools they studied at, and the institutions they worked with are effective in the process of the designer's professional activities or designs, the relevant information is summarized in the following figures.

As is shown in the graphic in Figure 1, designers who made their designs in Latin American geography but came to the world from a country outside of this geography were included in the sample. The designers and their architectural products were examined as samples within the scope of the research and within the spirit of the time they were in, generally bearing similar cultural codes with European influence, such as Bauhaus, and North American influence. However, the differences regarding the cultural codes mentioned in the designs of five of the architects born outside this geography could be read more clearly than the works of other designers born outside this geography. Therefore, 5 out of 84 architects were born outside of Latin America, as is seen in Figure 1. These architects

were Swiss-born Le Corbusier; two German-born architects, Henry Klumb and Max Cetto; and two Polish-born architects, Leopold Rother and Lucjan Korngold. Ruy Ohtake was born in Brazil as the son of a Japanese artist mother and Japanese engineer father who immigrated to Brazil two years before he was born. Roberto Burle Marx was born in Brazil to a German father and a Brazilian mother. Among these seven architects, Le Corbusier is more recognizable than the others, and the reason behind that is his international and intercultural working style. The opportunity to work in different environments and cultures brings together the possibility of feeding on different cultural pools. Figure 1 shows that Brazil (19.05%), Mexico (16.67%), and Venezuela (8.33%) were among the countries where the examples of architectural designers chosen as samples were born.

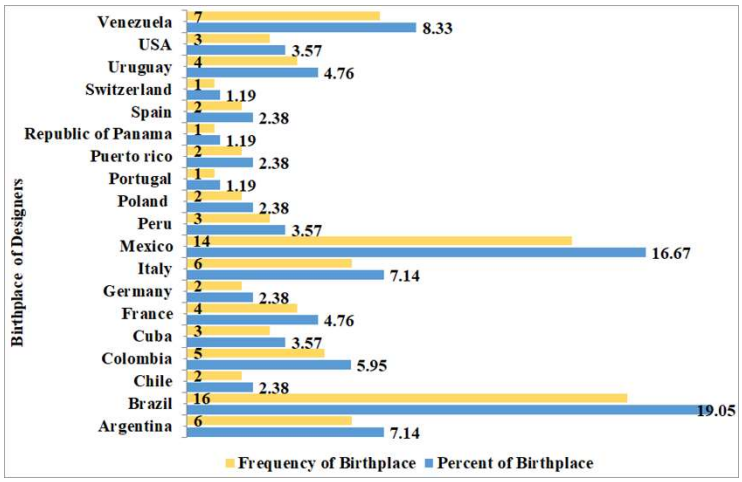


Figure 1. Birthplaces of designers.

Among the designers who were born in Latin American countries, Oscar Niemeyer (Oscar Ribeiro de Almeida Niemeyer Soares Filho, 1907–2012), who made the most mention of his name, began to be recognized at the 1939 New York World Fair in the world of international architecture with the design of the Brazilian Pavilion. His designs in Brazil were instrumental in creating some of the essential works of modern architecture and inspiring famous architects. As one of the key representatives of modern international architecture, Brazilian architect Oscar Niemeyer is one of the architects who pioneered the use of esthetic purposes of concrete in various forms. Oscar Niemeyer's architectural style, which began his architectural career in 1936 and continues to be designed, remains the most significant aspect of using cast concrete in a very innovative and varied fashion, even though it has changed periodically. In his speeches, Oscar Niemeyer also pointed out the value of concrete in architectural designs and usually claimed that the building design was complete when the reinforced concrete carrier system was finished. Together with Le Corbusier, he is one of the most influential leaders of modern architecture in the innovative use of cast concrete in the form of curvilinear shapes or shells [79]. The Brazilian National Convention Building is the most well-known of the architect's projects, mostly using a shell form. Le Corbusier's influence on Oscar Niemeyer's early designs is apparent, but the architect developed his style over time. Considering the esthetic use of concrete, the most noteworthy characteristic of this architectural style is the development of architectural forms that have not yet been seen in contemporary art, with subtly curved spaces [80].

The designers examined within the sample's scope were designers born between 1907 and 1924 who affected Latin American architecture, as can be seen in Figure 2. This is not a coincidence, and the reason behind it is that in the years between World War I and II, the Latin American countries in particular displayed a different dynamic from Europe and the other states under the influence of both wars. The brightest period of Latin American architecture was experienced in the 1940s with the families migrating from the countries that experienced the impact of both wars, with their professional and different

cultural perspectives and their investments moving to these countries. These designers, who came to world renown in Latin America countries, were in much better conditions both economically and democratically than those European countries trying to get rid of the effects of both wars and were able to find an environment that could freely realize their original designs after completing their education processes [81–83].

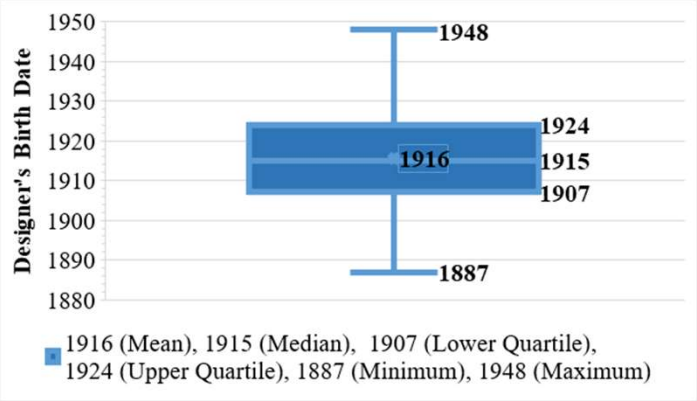


Figure 2. Birth dates of designers.

Hofstede [36] stated that national culture has an impact on professional culture. Likewise, Schein [84], who argued that cultural dimensions consist of particular layers, said that the values affecting the cultural structure are at the heart of this stratification and not easily observed. On the other hand, architecture, which is located on the outermost layer and can be easily seen, is expressed in many cultural studies in which artistic values and culinary culture are shaped by the country's culture [36,84]. If we consider the national culture as a universal cluster, it is known that the universities in this cluster also impact the cultural structure of the individual.

Moreover, it is stated that the personality and cultural characteristics of the individual have begun to take shape with the cultural texture of the family in which they are included. The schools where the designers were educated and the institutions they completed their training at played an essential role in determining this cultural structure [36,49,50]. We analyzed which universities the designers graduated from and how the countries bordered these institutions' locations for all these reasons. The first two nations where university designers finished their studies, as can be seen in Figure 3, were as big as those where they were born, with 22.62% of the designers completing their university education in Brazil and 14.29% doing so in Mexico. These countries were followed by the USA, Argentina, and Colombia, respectively. This result shows that, besides being born in Latin American countries, it was quite reasonable for the designers who completed their university educations within the borders of these countries to grow in a similar cultural texture. It was not a coincidence that the designers produced related sculptural and original architectural works because the memetic of Dawkins [10] continued to exist due to the same cultural values stated by Hofstede [36]. Although the study's scope was deficient due to the number of designers born in Latin American countries and who completed their educations in other countries, traces could be read from their own national cultures in their designed products. As can be seen in Figure 3, the architectural works of the designers who completed their educations in countries such as Switzerland, Germany, and Poland differed from this point of view from the architectural works of other designers, as was explained in detail before.

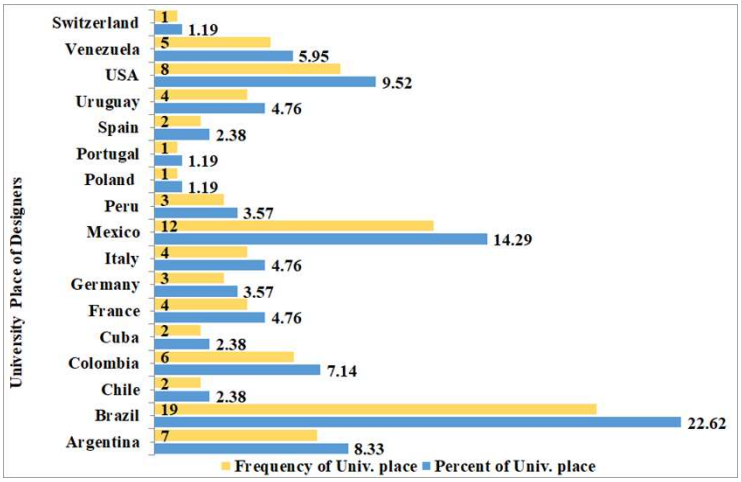


Figure 3. Universities of graduation of the designers.

Therefore, when the architectural works of the remaining designers were analyzed, it could be easily observed that the gene pool expressed by Dawkins [10] or the common memetic came into play in terms of architectural design culture. Similarly, as is shown in Figure 4, the designers' continued professional activities after university graduation was analyzed.

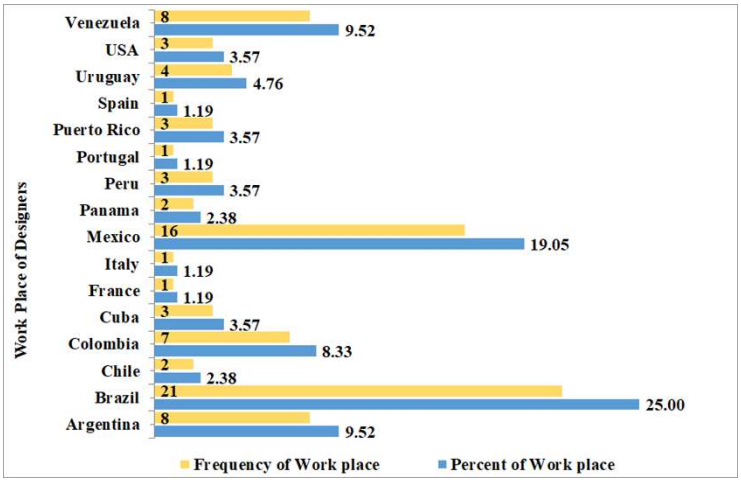


Figure 4. Workplaces of the designers.

To a large extent, these designers (25% of them) continued their professional activities in Brazil. Following this country, Mexico had 16 designers (19.05%), and Argentina and Venezuela ranked third with the same ratio (9.52%). As was described above, one can read the traces of Japanese culture from the Japanese parents of Ruy Ohtake when they migrated to Brazil shortly before the designer's birth and fed the collective gene pool with Ohtake's designs, which is continued in the region both in education and in professional practice. Beyond the traditional Japanese culture, it was observed that two different cultural structures, Japanese and Latin American cultures, were synthesized and reflected in the architectural design culture of the designer. Therefore, the research results reveal that Latin American culture fed the architectural design cultures of the designers who mainly pursued their professional activities in Latin American countries.

8. Conclusions

It is important to concentrate on cognition, which grows with personal and cultural experience, to comprehend the impact of mental functioning on design and creativity

in architecture. The knowledge accumulated in a society's minds is often expressed as images, sentences, thoughts, and responses, which often serve as cultural components that embody a society's basic behavioral values. As a result, the interaction between culture and cognition is critical in architectural innovation, as is architecture and understanding the human–environment relationship. The architectural design process was handled from a personal, cognitive, and cultural perspective in the context of this research. Within the scope of the study, it was observed in architectural design products that common mental representations of Latin American society became a behavior shaped by experience. The effect of the individual and cultural information about designers who continued their professional activities in Latin American geography on a design by coding over time was evaluated within cultural codes. When the architectural works were examined, it was seen that various inferences could be made regarding the cognitive view and cultural codes of the designer. This situation caused the meanings and concepts to be interpreted and coded differently in every society.

This conceptual research, based on the theories of two leading scholars, Dawkins and Hofstede, who have relevant theoretical studies on culture, focused on the works and life stories of the designers who opened their doors to the world with the Latin American architecture exhibition held after the Second World War. Research hypotheses were created upon these theories. The designers were analyzed by focusing on the vocational educations and professional life processes, including all their lives since birth. These designers and their architectural works, which have found comprehensive coverage in the architectural literature as of the exhibition period, have had great impact worldwide. It is obviously not a coincidence that reason for the emergence of these architectural products, which exhibit distinctive characteristics and remarkable plastic properties in terms of creativity and attribute to buildings both formal features and artistic images. When the designers of these remarkable original structures started to be examined, the encounter with architects from Latin American geography began to answer our question at the beginning stage of the research. In the later stage of the study, together with the conceptual framework based on theoretical terms, the MoMA book published about the architects who realized more designs during the focused period was almost a base.

We excluded architectural works carried out today and in recent history in the research, which started from the 1940s to the 1970s and focused on architectural works before the digital period, when communication technologies were not as advanced as today. The most important reason for narrowing the research scope was that it was directly proportional to the hypothesis created based on cultural theorists such as Dawkins and Hofstede. Likewise, the digital age we are in makes it very easy for designers to feed on the prevailing cultural pool mentioned by these theorists. For this reason, architectural works that have been made today or in current history were excluded from this research. On the other hand, Rodgers and Strickfaden [33], proving how accurate this decision was, realized the background and design identities of the design cultures that they considered examples from different cultures within the theoretical framework of Dawkins.

The designs of the architects, of which their entire lives and architectural cultures were analyzed, attracted international attention during the period mentioned above. The most important reason for the impact of the shared cultural pool dominating Latin geography is reflection, which is a significant factor in the work of designers. Another important reason is that reinforced concrete craft, which is a material that does not limit the creative power of the designer in terms of plastic, was relatively cheaper at that time compared with other types of geography. In total, 77 of 84 architects selected as samples were designers born in Latin American geography, and 7 were either born in a country outside this geography or from a mother and father who migrated from a different country and settled in this geography. The visual traces of the values or cultures of different nations carried by these architects through cultural and genetic ties are visible in the designs of these architects. The designs of the remaining 93% of the architects show that the original structures belong

to sculptural features. Hence, astonishing and unique structures belong to the Latin culture was not a coincidence, but the result of a design culture fed from the collective cultural pool.

The results of the research show that the studied Latin American architects were mostly Brazilian and Mexican. These architects were mainly born in the first quarter of the twentieth century. The results also show that these architects prefered to study and work in their home countries. The research results clearly indicate that the Latin American architecture movement experienced its most popular period in the local sense in the period between 1945 and 1975. In this sense, our study can be defined as a pioneering study that will shed light on the studies to be made on how the Latin American architecture culture affects different architectural designs in the world following the determined period.

Author Contributions: Conceptualization, İ.A.; methodology, İ.A., İ.Y., M.E.A., N.A.; formal analysis, İ.A., İ.Y., M.E.A., N.A.; investigation, İ.A., İ.Y., M.E.A., N.A.; resources, İ.A., İ.Y., M.E.A., N.A.; data curation, İ.A., İ.Y., M.E.A., N.A.; writing—original draft preparation, İ.A., İ.Y., M.E.A., N.A.; writing—review and editing, İ.A., İ.Y., M.E.A., N.A.; visualization, İ.A., İ.Y., M.E.A., N.A.; supervision, İ.A., İ.Y., M.E.A., N.A.; project administration, İ.A., İ.Y., M.E.A., N.A. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Pauls, E.P. Encyclopedia Britannica. 2013. Available online: https://www.britannica.com/topic/cultural-evolution#toc1655 (accessed on 3 May 2020).
2. Lang, J. *Creating Architectural Theory: The Role of the Behavioral Sciences in Environmental Design*; Van Nos-Trand Reinhold: New York, NY, USA, 1987.
3. Lewens, T. *Cultural Evolution: Conceptual Challenges*; OUP Oxford: Oxford, UK, 2015.
4. Griffiths, D. *The Age of Analogy: Science and Literature between the Darwins*; JHU Press: Baltimore, MD, USA, 2016.
5. Issawi, C. Ibn Khaldun on ancient history: A study in sources. *Princet. Pap. Near East. Stud.* **1994**, *3*, 127–150.
6. Basalla, G. *The Evolution of Technology*; Cambridge University Press: Cambridge, UK, 1988.
7. Leach, A. What is Architectural History? John Wiley & Sons: Hoboken, NJ, USA, 2013.
8. Fletcher, B. *A History of Architecture On the Comparative Method for the Student, Craftsman, and Amateur*; Nabu Press: Charleston, SC, USA, 2010; ISBN 1147027226.
9. Jencks, C. Jencks's theory of evolution: An overview of twentieth-century architecture. *Archit. Rev.* **2000**, *208*, 76–79.
10. Dawkins, R. *Gen Bencildir (Selfish Gene)*; Kuzey Yayınları: Antalya, Turkey, 2019; ISBN 978-9944-315-79-1. (In Turkish)
11. Holland, J.H. *Adaptation in Natural and Artificial Systems: An Introductory Analysis with Applications to Biology, Control, and Artificial Intelligence*; MIT Press: Cambridge, MA, USA, 1992.
12. Frazer, J.H. A natural model for architecture: The nature of the evolutionary model 1995. In *Cyber Reader: Critical Writings for the Digital Era*; Phaidon Press Limited: London, UK, 2002; pp. 246–255.
13. Kiesler, F. On correalism and biotechnique: A definition and test of a new approach to building design. *Archit. Rec.* **1939**, *86*, 60–75.
14. Geddes, P. *Cities in Evolution: An Introduction to the Town Planning Movement and to the Study of Civics*; Williams: London, UK, 1915.
15. Mokyr, J. Evolutionary biology, technological change, and economic history. *Bull. Econ. Res.* **1991**, *43*, 127–149. [CrossRef]
16. Braham, W. Correalism and Equipoise: Observations on the sustainable. *Archit. Res. Q.* **1999**, *3*, 57–63. [CrossRef]
17. Ashcroft, B.; Griffiths, G.; Tiffin, H. *Post-Colonial Studies: The Key Concepts*; Routledge: London, UK, 2013.
18. Cobley, P.; Jansz, L. *Introducing Semiotics*; Icon Books Ltd.: London, UK, 2004; ISBN 1840465840.
19. Bal, M.; Bryson, N. Semiotics and art history. *Art Bull.* **1991**, *73*, 174–208. [CrossRef]
20. Chandler, D. *Semiotics: The Basics*, 2nd ed.; Routledge: London, UK, 2007; ISBN 978-0-415-36375-4.
21. Hassenpflug, D. Once again: Can Urban Space be Read. In *Reading the City: Developing Urban Hermeneutics/Stadt Lesen: Beiträge zu Einer Urbanen Hermeneutik*; Auflage: Neuausgabe; Verlag der Bauhaus-Universität Weimar: Weimar, Germany, 2011; pp. 49–58. ISBN 3860684264.
22. Barthes, R. *The Semiotic Challenge*; Farrar, Straus & Giroux: New York, NY, USA, 1988; ISBN 0809015382.

23. Lefebvre, H. *The Production of Space*; Blackwell: Hoboken, NJ, USA, 1991; ISBN 0-631-18177-6.
24. Eco, U. *A Theory of Semiotics. Bloomington*; Indiana University Press: Bloomington, IN, USA, 1976.
25. Gottdiener, M. *Culture, Ideology, and the Sign of the City, in the City and the Sign*; Gottdiener, M., Lagopoulos, A., Eds.; Columbia University Press: New York, NY, USA, 1986.
26. Gottdiener, M. *The New Urban Sociology*; McGraw-Hill: New York, NY, USA, 1994; ISBN 0070239126.
27. Eco, U. Function and sign: The semiotics of architecture. In *Signs, Symbols and Architecture*; Broadbent, G., Bunt, R., Jenks, C., Eds.; John Wiley & Sons: Chichester, UK, 1980.
28. Broadbent, G. A semiotic program for architectural psychology. In *Meaning and Behaviour in the Built Environment*; Broadbent, G., Bunt, R., Llorens, T., Eds.; John Wiley & Sons: New York, NY, USA, 1980.
29. Lynch, K. *Good City Form*, 2nd ed.; MIT Press: Cambridge, MA, USA; London, UK, 1984; ISBN 0-262-12085-2.
30. Barthes, R. *Semiology and the Urban, in The City and the Sign*; Gottdiener, M., Lagopoulos, A., Eds.; Columbia University Press: New York, NY, USA, 1986.
31. De Botton, A. *Mutluluğun Mimarisi (The Architecture of Happiness)*; Print in Turkish; Vintage Books: İstanbul, Turkey, 2010; ISBN 978-975-570-305-3.
32. Julier, G. *The Culture of Design*; Sage Publications Ltd.: London, UK, 2000.
33. Rodgers, P.A.; Strickfaden, M. The culture of design: A critical analysis of contemporary designers' identities. In *Design Wisdom: Fifth European Academy of Design Conference*; Universitat de Barcelona: Barcelona, Spain, 2003.
34. Billington, D.P.; Mark, R. In Response to Another View of the Cathedral and the Bridge. *Technol. Cult.* **1984**, *25*, 595–601. [CrossRef]
35. Falbel, A. Immigrant architects in Brazil: Old and new tools for a historiographical discussion. In *Les Cahiers de la Recherche Architecturale Urbaine et Paysagère*; Ministère de la Culture: Paris, France, 2018.
36. Hofstede, G. *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*; Sage Publications: London, UK, 2001.
37. Maluenda, A.E. *La Arquitectura Moderna en Latinoamérica: Antología de Autores, Obras y Textos (Modern Architecture in Latin America: Anthology of Authors, Works and Texts)*; Estudios Universitarios de Arquitectura: Barcelona, Spain, 2016; ISBN 978-8429121278.
38. Arango, S. Ciudad y arquitectura. In *Seis Generaciones que Construyeron la América Latina Moderna (City and Architecture. Six Generations that Built Modern Latin America)*; Fondo de Cultura Económica: Guatemala City, Guatemala, 2012; ISBN 9786071610010.
39. Bleek, W. Auslandsdeutsche (Germans abroad). In *Handwörterbuch des Politischen Systems der Bundesrepublik Deutschland*; VS Verlag für Sozialwissenschaften: Wiesbaden, Germany, 2000; pp. 18–21.
40. Fausto, B.; Fausto, S. *A Concise History of Brazil*; Cambridge University Press: Cambridge, UK, 2014.
41. Rangel, C. *The Latin Americans: Their Love-Hate Relationship with the United States*; Routledge: London, UK, 2017.
42. Skidmore, T.E.; Smith, P.H. *Modern Latin America*, 6th ed.; Oxford University Press: Oxford, UK; New York, NY, USA, 2005; pp. 1–10. ISBN 0-19-517013-X.
43. Hitchcock, H.R. *Latin American Architecture Since 1945*; Published for the Museum of Modern Art by Arno Press: New York, NY, USA, 1972.
44. Pierson, W.H.; Jordy, W.H. American buildings and their architects. In *The Impact of European Modernism in the Mid-Twentieth Century*; Oxford University Press: New York, NY, USA; Oxford, UK, 1986; Volume 5.
45. Del Real, P. Building a continent: MoMA's Latin American Architecture Since 1945 Exhibition. *J. Lat. Am. Cult. Stud.* **2007**, *16*, 95–110. [CrossRef]
46. Gutheim, F.A. Buildings at the Fair. *Mag. Arts* **1939**, *32*, 286–289.
47. Goodwin, P.L. *Brazil Builds: Architecture New and Old, 1652–1942*, 1st ed.; Museum of Modern Art: New York, NY, USA, 1943.
48. Smith, P.B.; Dugan, S.; Trompenaars, F. National culture and the values of organizational employees: A dimensional analysis across 43 nations. *J. Cross Cult. Psychol.* **1996**, *27*, 231–264. [CrossRef]
49. Trompenaars, F.; Hampden-Turner, C. *Riding the Waves of Culture*; Nicholas Brealey: Boston, MA, USA, 1997.
50. Schein, E.H. *Organizational Culture and Leadership*; John Wiley & Sons: Hoboken, NJ, USA, 2010; Volume 2.
51. Tanju, B. Mimarlıkta Göstergebilim (Semiotics in Architecture). In *Eczacıbaşı Sanat Ansiklopedisi*; YEM Yayın: İstanbul, Turkey, 1997; Volume 2, pp. 1257–1258.
52. Goldstein, J.H. *The Psychology of Humor: Theoretical Perspectives and Empirical Issues*; Academic Press: Cambridge, MA, USA, 2013.
53. Augoustinos, M.; Walker, I.; Donaghue, N. *Social Cognition: An Integrated Introduction*; Sage: London, UK, 2014.
54. Fiske, J. *Understanding Popular Culture*; Routledge: London, UK, 2010.
55. De Saussure, F. *Course in General Linguistics*; Columbia University Press: New York, NY, USA, 2011.
56. Berger, D. *Kant's Aesthetic Theory: The Beautiful and Agreeable*; Bloomsbury Publishing: London, UK, 2009.
57. Baudrillard, J. *The Anti-Aesthetic: Essays on Postmodern Culture*; Bay Press: Winnipeg, MB, Canada, 1983.
58. Sassatelli, M. An interview with Jean Baudrillard: Europe, globalization, and the destiny of culture. *Eur. J. Soc. Theory* **2002**, *5*, 521–530. [CrossRef]
59. Colomina, B. Le Corbusier and photography. *Assemblage* **1987**, *4*, 7–23. [CrossRef]
60. Lucjan Korngold, 1.07.1897–6.02.1963. Available online: https://culture.pl/en/artist/lucjan-korngold (accessed on 10 August 2020).
61. Rytel, G. Wpływ klimatu na formy brazylijskiej architektury modernistycznej w latach 1925–1960 (The Influence of Climate on the Forms of Brazilian Modernist Architecture in the Years 1925–1960). *Kwart. Ar. Chitektury Urban.* **2013**, *58*, 57–78.

62. Ruy Ohtake, Arte Fora Do Museu. Available online: https://arteforadomuseu.com.br/ (accessed on 11 July 2020).
63. Interview with Brazilian Architect Ruy Ohtake by Philip Stevens, Designboom. Available online: https://www.designboom.com/architecture/ruy-ohtake-interview-06-26-2016/ (accessed on 1 December 2020).
64. Eggener, K. Postwar Modernism in Mexico: Luis Barragán's Jardines del Pedregal and the International Discourse on Architecture and Place. *J. Soc. Archit. Hist.* **1999**, *58*, 122–145. [CrossRef]
65. Max Cetto, Arquitectura Moderna en México/ Modern Architecture in Mexico. Available online: https://web.archive.org/web/20140714205106/http://www.arts-history.mx/semanario/especial.php?id_nota=17022012144057 (accessed on 16 December 2019).
66. En Perspectiva: Max Cetto. Available online: https://www.archdaily.co/co/762443/en-perspectiva-max-cetto (accessed on 24 May 2019).
67. Pérez Escolano, V. A European Glance in the Mirror of Caribbean Modern Architecture. *Docomomo J.* **2005**, *33*, 86–91.
68. Cruz, C.A. Henry Klumb: Puerto Rico's critical modernist. *Archit. Res. Q.* **2019**, *23*, 33–46. [CrossRef]
69. Moreen, L.L. Midcentury Planning in San Juan, Puerto Rico: Rexford Guy Tugwell, Henry Klumb, and Design for Modernization. Ph.D. Thesis, Washington University, St. Louis, MO, USA, 2013.
70. Vivoni Farage, E. *Henry Klumb and Poetic Exuberance in Architecture. Klumb: An Architecture of Social Concern*; University of Puerto Rico: San Juan, Puerto Rico, 2006.
71. Heynen, H. Questioning authenticity. *Natl. Identities* **2006**, *8*, 287–300. [CrossRef]
72. Otero, R.D. Permeable Walls and Place Recognition in Henry Klumb's Architecture of Social Concern. Ph.D. Thesis, University of Pennsylvania, Philadelphia, PA, USA, 2005.
73. Farage, E.V. Modern Puerto Rico and Henry Klumb. *Docomomo* **2005**, *33*, 28–37.
74. Hines, T.S. *Richard Neutra and the Search for Modern Architecture*; Oxford UP: Oxford, UK, 1982.
75. Gutiérrez, R.; Gutiérrez-Viñuales, R. *Una Mirada Crítica a la Arquitectura Latinoamericana del Siglo XX: De las Realidades a los Desafíos (A Critical Look at Latin American Architecture of the Twentieth Century: From Realities to Challenges)*; Karge, E., Ed.; Independencias dependientes; Art and national identities in Latin America; Universidad de Dresde: Dresden, Germany, 2012; Available online: https://www.ugr.es/~{}rgutierr/PDF1/171.pdf (accessed on 3 January 2021).
76. Curtis, W.J.R. *La arquitectura Moderna Desde 1900 (Modern Architecture Since 1900)*; Phaidon Press: New York, NY, USA, 2006; ISBN 978-07-148-9850-6.
77. McVee, M.B.; Dunsmore, K.; Gavelek, J.R. Schema theory revisited. *Rev. Educ. Res.* **2005**, *75*, 531–566. [CrossRef]
78. Gardin, N.; Olorenshaw, R.; Gardin, J.; Klein, O. *Le Petit Larousse des Symboles (The Little Larousse of Symbols)*; Larousse: Paris, France, 2019.
79. Hasol, D. Oscar Niemeyer'le Söyleşi, Doğan Hasol, January 1989. Available online: DoganHasol.net (accessed on 3 March 2020).
80. Tell, D. Measurement and Modernity: Height, Gender, and Le Corbusier's Modulor. *Public Cult.* **2019**, *31*, 21–43. [CrossRef]
81. Rock, D. (Ed.) *Latin America in the 1940s: War and Postwar Transitions*; University of California Press: Oakland, CA, USA, 1994.
82. Cornia, G.A.; Kiiski, S. *Trends in Income Distribution in the Post-World War II Period: Evidence and Interpretation (No. 2001/89)*; WIDER Discussion Paper; United Nations University (UNU): Tokyo, Japan, 2001.
83. Biglaiser, G.; De Rouen, K., Jr. Economic reforms and inflows of foreign direct investment in Latin America. *Lat. Am. Res. Rev.* **2006**, *41*, 51–75. [CrossRef]
84. Schein, E.H. Culture as an environmental context for careers. *J. Organ. Behav.* **1984**, *5*, 71–81. [CrossRef]