

Metasynthesis and Genealogy of Modern Design Principles

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Abstract

Since the middle of the 19th century until now, there have been many discussions around the principles of modern design, and many design histories books have explained and developed these principles. But there are two problems in those works: first, there is no comprehensive consensus about these principles and the second problem is that the historiography and stylistics of modern design, influenced by the forms of creationism based on genius, illustrate an apparently coherent narrative of the principles of modern design which is completely author-centered (by Author we mean all creators like artists and designers) and relies on the genius, author's intention, and the final meaning of the work. However, this form is rejected by various schools, nowadays. Considering these two issues, the question of the current research is "What are the modern design principles?" and "under the influence of what contextual factors these principles were formed?". To find the answer, the principles of the modern design have been categorized into seven items, using the metasynthesis method. In the next step, this research has dealt with the genealogy of the extracted principles (focal categories) by leaving aside the modern paradigm of creativity and modern theoretical horizons, relying on new findings of creativity. The genealogy of principles shows that modern principles and meta-narrations have not been created based on the author's intention but in a bilateral interaction between the formal language and the transformations and inconsistencies that occurred in the social and cultural field of the design. This formation is historical and has happened over a long period of time. These principles are not only related to the overall socio-cultural context of design, but each of them somehow behaves like a context and a peripheral force for other principles.

Keywords

Stylistics, Modern Design, Industrial Design, Design Context, Metasynthesis.

Introduction

Despite the countless references and verdicts that exist on the principles of modern design, or in other words the principles of good design, there is still no consensus on what the principles of modern design are, and each source or reference personally proposes the criteria. Another issue that greatly distorts our historical understanding of this design style or period is the interpretation of how these principles came about. Most criticisms and historiographies in the field of modern art, design, and architecture are focused on the author and the originality of creativity, and less attention is paid to the role of infrastructures and the field of design in the formation of a specific language and expression in art and design in this way. In the history and stylistics of modern art and design, milestones and examples of creativity are interpreted from the perspective of the genius of designers and artists. It is as if these people were the origin of changes by their own will, independent from the context. Although researchers point to the role of the social contexts, in practice, the focus of their research is the genius and intention of the authors and the final meaning of the works. They even show how that genius reflected society in his work and appeared as a savior for culture and art.

The most important reason for this approach is that the conducted pieces of research are completely influenced by the paradigm of creativity based on genius. To be more precise, creativity is a meta-concept whose definition will guide other definitions in the field of design and art. The problem is that everyone has a definition of creativity, but the definitions of creativity are not the same. Based on [Amraee et al. \(2022\)](#), there are three types of definitions or indeed paradigms of understanding creativity. These definitions are: creativity as a kind of inspiration from superhuman sources, creativity as the author's genius, and creativity as a cognitive action. Modern stylistics follows the form of modern intellectual and cultural epistemology and hence defines the source of creativity based on the person-centeredness and originality of the author. This is despite the fact that based on new ideas and findings in various fields, especially the psychology of creativity and cognitive science, a new paradigm has been formed in the world of art and design, or in fact, according to Thomas Kuhn, a paradigm shift ([Pooke & Newall, 2008](#)) has happened in our cognition of creativity. The new form of creativity shows the active role of context and meta-textual communication in the creation of the work.

Therefore, we are faced with two problems: first, *what are the modern design principles?* and second, *Under the influence of what contextual factors these principles formed?*

Methodology

In order to answer the research question, at first the theoretical framework was formulated based on the third paradigm of creatology. then, the research plan has been set up in two stages: first, metasynthesis of theories on the principles of modern design, and second, the genealogy of the derived principles. In the first stage, metasynthetic research was conducted using [Sandelowski and Barroso's \(2006\)](#) seven-step model. It means, after setting the question, a systematic review of the subject's literature has been completed. Then, the appropriate manuscripts have been selected.

The entry criteria were:

1. Manuscripts must be peer-reviewed research or authoritative books.
2. The purpose of the manuscripts should be related to the standards, principles, or meta-narrations of modern design.
3. The manuscripts must have been published within the last thirty years.

In the next section, the manuscripts were read and analytical units were extracted, then three stages of open, axial (sub-categories) and focused (main categories) coding were done. Finally, seven focal categories have been identified as principles or meta-narratives of modern design.

After that, the internal validity and reliability of these principles have been confirmed by two experts. In the second phase of the research, these seven focal categories were discussed genealogically based on the criterion of *context*.

The Relationship between Creativity Models and Modern Stylistics

In order to address the main questions of the research, it is necessary to answer some preliminary questions. First, the question *what is creativity?* which has a very special place in art and design research. This question can be considered as the basis of epistemology and even metaphysics of art and design, because art and design are processes that lead to creation, and therefore the type of definition and recognition of creativity directly leads to the type of definition of art and design. Considering the importance of this issue, these preliminary questions should be answered: *what are the definitions of creativity?* and *the history of modern design is influenced by which one?* As mentioned in the introduction, based on [Amraee et al. \(2022\)](#) there are three paradigms of creativity:

- The paradigm, based on inspiration, imitation, and fantasy: In these theories, *inspiration* is the focal category. This group of theories considers the origin of creativity to be superhuman resources and explains how it is through the mechanism of inspiration or imagination. This form has had a long and wide echo in the mentality of the general society and even the scientific and academic atmosphere of the art fields.
- The paradigm, based on genius and unconscious: The focal category in the second group is *genius and unconsciousness*. In this group, they consider the source of creativity to be deep in the subconscious and usually emphasize *creative leap*. In this approach, creativity is the result of the authors' genius. This theoretical framework has been common since the Renaissance until today, but it has had various manifestations in the philosophy of romantic art and Freudian psychoanalysis.
- The paradigm, based on cognitive actions: This group of theories defines creativity as a normal, perceptual, and experimental activity. In this form, the source of creativity is a wide range of mental mechanisms. In this definition, creativity starts in response to external stimuli, i.e., from feeling and perception, and forms an array of precedents by reflective thinking.

This research is based on the third paradigm, *cognitive creativity*, because it is up-to-date and based on solid scientific evidence in cognitive sciences. It should be noted that, in addition to cognitive sciences, nowadays, this paradigm can be seen in various schools and approaches with the specific vocabulary of those discourses, for example, in the psychology of creativity ([Weisberg, 2006](#)), post-structuralist literary criticism (with concepts such as the death of the author ([Foucault, 1977](#)), new ideas in the field of image studies ([Sontag, 2005](#)) and even creative techniques such as the theory of *TRIZ* ([Trenenko, 2002](#)).

Modern stylistics: Here, the second preliminary question is raised: *Modern stylistics is influenced by which paradigm of creativity?* It is clear that modern stylistics, as a part of the modern intellectual and cultural system, in connection with the horizon of modern creativity, is based on the second model, that is, genius and unconsciousness. design history and stylistics are highly author-oriented, and with a *chronology* approach, relying on authors and works, they offer years as the exact birth dates of schools. In this approach, styles and other cultural phenomena are treated like periods of Reigning Monarchs, that is dynasties beginning with a person and ending with another person. For this reason, history and modern stylistics are full of the names of great designers and architects who are considered to be the cause of new movements. As a result of this author-centered view, modern stylistics always tries to praise and interpret the formal movements of modern masters, and instead, it does not have a proper answer to some questions and problems. For example, stylistics and modern art criticism cannot explain why the works of two architects of the same period are similar to each other? Why populace cannot differentiate between the works of prominent and so-called elite masters like Mies van der Rohe and Le Corbusier? And why does the modern style in each region have its own characteristics?

Therefore, as Hauffe (1995) says, design history shouldn't merely be a chronology of objects and their forms, but, especially after the 20th century, the history and stylistics of design should consider the deep interaction between human beings and their objects.

Metasynthesis of Modern Design Principles

Most sources consider the modern style in design and architecture to be related to the period after the First World War in Europe, and a few names are mentioned as modern pioneers. Even an expert like Blake (1998) believes that only Frank Lloyd Wright, Le Corbusier, and Mies van der Rohe are the founders of modern style, and even Walter Gropius does not qualify for this position. even if this number is considered to be three people or ten people, this viewpoint is very individual-oriented. Of course, there is no doubt that these celebrities established a new formal expression in their buildings and products. The language that is evident in Le Corbusier's furniture or buildings such as the Waterfall House¹, the Bauhaus School in Dessau², or the German Pavilion in Barcelona³. These masters have been praised for the high quality of their designs for decades. The lofty position of these elders was never questioned until the post-modern era. But in recent decades, design criticisms reached the possibility of criticizing them. Of course, despite these criticisms, still there is the image of the author as a godfather, i.e., even the post-modern criticisms do not deny the agency of these people in the formation of the modern design trend, it just challenges them as the culprits. Therefore, this question has not been paid attention to, *where did the intellectual and formal roots of modern design, (which can be seen in the work of the first generation of modern designers), come from?* For the answer, we must first check what are the main features or principles of modern design.

Based on the research plan (which was explained after the introduction), seven focal categories were identified as the principles of modern design. to use a more postmodern jargon, we can call these principles *meta-narratives*⁴ of modern design referencing Lyotard (1984). These categories are completely interconnected, in other words, modern design has an interconnected set of meta-narratives that form the criteria for identifying a good design from a bad design in the modern design literature.

These seven focal categories are (Figure 1):

1. Modernity
2. Industrial and mass production
3. Simplicity and rejection of representation
4. Rationalism
5. Functionalism
6. Originality of materials and structure
7. Global language

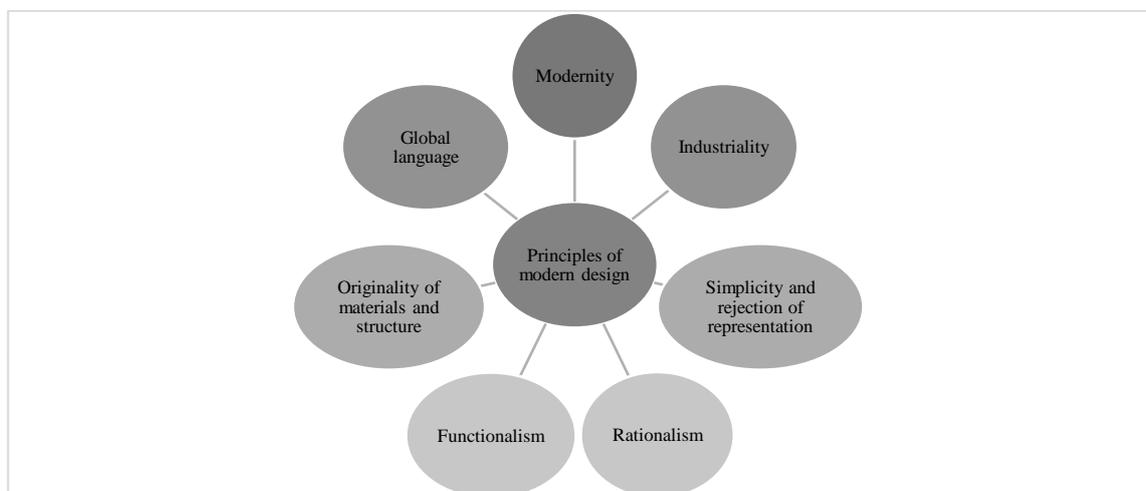


Figure 1: Principles of modern design.

¹ Designed by Frank Lloyd Wright.

² Designed by Walter Gropius.

³ Designed by Mies van der Rohe.

⁴ It is a term popularized by the postmodern critic Jean-Francois Lyotard about modern principles and guidelines.

The importance of these principles and meta-narratives is shown when some of these features are used in the form of names and epithets of this type of design. In various manuscripts, instead of the word modern design (which is the main name of this type of design), the words *industrial design*, *rational design*, *functional design* and *international design* are used abundantly, which shows the importance of these features. It should be remembered that at least a few other criteria could be listed as focal categories, for example, *originality of design experience* and *modern teaching methods* were other important key categories, but this research has focused on criteria that have more reputation and public consensus, and also the advocates of modernism have relied on them more. Now by determining the main principles of modern design, we can raise the second question, which contextual factors have formed these principles?

Genealogy of Modern Design Principles

It is obvious that the type of creatology has severely limited and distorted our historical understanding of modern style. This history has lots of epistemological gaps and modifying them needs a new research approach, therefore This research has used the *genealogy* method in its historical discussion. Genealogy is the method that *Michel Foucault* used to find inconsistencies in historical research.

Based on his scientific approach, Foucault examines the manifestations of reality through the occasions they have with other manifestations and follows their course from the present to the past. It means he is looking for reversed history, rather than starting his research from the past and then going to the present, he connects his path from the present to the past. That's why he benefits from the method of genealogy. Unlike the strategies of traditional history, the mentioned genealogy method does not look for any stable treat and unchangeable nature, but it looks for gaps and breaks in historical processes ([Zeimaran, 2005](#)).

In this research, by being aware of these gaps in the historiography and stylistics of modern design, the genealogy of modern style has been discussed, hence there has been a move from the current understanding of the modern style (which is author-centered), toward the past to recognize the current manifestations of modern style, by the contextual origins of this style. The existing stylistics pretend that these features have a comprehensive coherence around the author's genius. But in the continuation of the research, each of the characteristics has been returned to its contextual origins.

1. Modern Design

[Alexander \(1964\)](#), one of the pioneers of paying attention to context in design, considered design to be the matching of form and context. Design is always a reaction to the current changes in the context and resulting from those changes. For this reason, the connection between design types and their community is like the connection between two sides of a coin. Every society has its own type of design. Traditional design has the same characteristics as traditional society, and the same relationship exists between modern design and modern society. In this way, referring to [Giddens \(2001\)](#), just as modern society was created based on the break from the traditional society, modern design is also separated from traditional European design. This shows that the types of design are not along with each other but their society and context. Based on this argument, just as the social life of Europe faced antitheses, traditional design also faced those antitheses and as a result, a new synthesis was created ([Figure 2](#)). Phenomena such as Enlightenment philosophy, the growth of the middle class, mass production, and the development of communication and trade led to a break in the social lifestyle of Europe.

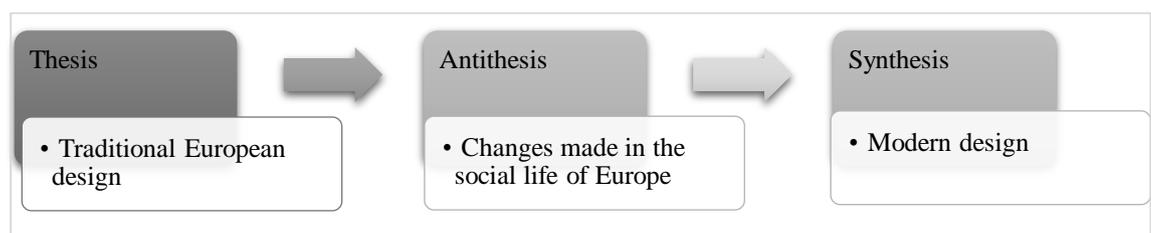


Figure 2: The relationship between design and infrastructural changes in the European community.

It should be noted that comprehensive changes in the social infrastructure not only led to a change in lifestyle but also resulted in a change in aesthetics. The history of art in the middle of the 19th century shows a crisis that can be considered a crisis or conflict between aesthetic approaches. The chronology of art history books shows that in the second half of the 19th century, styles were used one after the other, but in fact, the second half of the 19th century witnessed an aesthetic break, which means that contrary to what the chronology of history shows, at the same time, there are several definitions of aesthetics, each of which has its own supporters and there is no consensus about the beauty¹. This crisis is evident both in the fields of visual arts, especially painting, and in the field of applied arts.

Aesthetic Crisis of Applied Arts in the 19th Century

From the middle of the 19th century², the debate on *what is good* became popular in applied arts, especially architecture and design. The traditional aesthetics of applied arts were challenged by an interconnected domain of variables.

Two of these important factors are:

1. Significant development of materials and manufacturing methods: As [Raizman \(2011\)](#) says, since the first half of the 19th century, we have seen a manufacturing expansion in materials and production processes. Since then, new materials (like cement and aluminum) were used industrially. Even materials such as steel and glass found a new definition. In addition to these materials, the knowledge of mechanical and static physics allowed the designers to build and produce without having traditional design and architecture skills.
2. Invention of new products: Along with new construction materials and knowledge, the range of merchandises developed significantly. In the field of design, products such as electrical appliances, trains, telephones and sewing machines did not have a traditional background. In architecture, buildings such as train stations, silos, factory halls, greenhouses, steel bridges and towers were built, which did not have the status of architecture, and therefore *newly emerging building materials and styles were able to be used without official barriers* ([Jensen, 2000](#)).

On the other hand, the creators of these products and buildings did not have much knowledge and aesthetic concern. In the construction of Crystal Palace, Joseph Paxton gave more attention to technical and economic issues than traditional aesthetic issues ([Grutter, 1996](#)). The product of these engineers was often called ugly, bare, wild, crude and even glass monstrosity (in the case of Crystal Palace) according to traditional aesthetic criteria ([Pevsner, 1995](#)). Engineering aesthetics was clearly incompatible with traditional aesthetics, and even when some manufacturers tried to make their products compatible with traditional aesthetics through *historicism*³ and *eclecticism*⁴, the result was a disgusting combination of an industrial form and historical elements. This condition led to extensive discussions about aesthetics and the need to create a new formal language. On the one hand, the supporters of engineering production considered any kind of aesthetic consideration useless. On the other hand, very strong currents in the social field (left movements, especially Marxism), the philosophical field (such as Hegel), and the field of architecture and design (such as the arts and crafts movement) strongly opposed industry and modernity. In the midst of this, there was a third movement that hoped to reform the industry and create a new formal language and aesthetics (people like *Henry Cole, Gottfried Semper* and *Adolf Loos*) ([Heskett, 1997](#); [Fiell & Fiell, 2016](#)). A language that rejects historicism, and has unity with its social context. The history of industrial design shows that this moderate and reformist trend was accepted in the heart of society.

2. Industrial design and construction

One of the most important features of modernity is the expansion of the middle class. Modern economic organization based on industry, trade, symbolic money system, and urban life led to the change from an agricultural society to an industrial society. A change that of course lasted for several centuries and the result of which was the significant increase of the middle class and the dominance of their demands in the social processes.

¹ The styles such as Realism, Pre-Raphael Brotherhood, Impressionism, Post-impressionism, and Symbolism are in a time symmetry and each of them claims the correct definition of beauty.

² Usually, in the history of modern design and architecture, the Crystal Palace Exhibition (1851) is mentioned as a turning point of aesthetical criticism of industrial production.

³ A term in art criticism to refer to works that imitate a historical period.

⁴ A term in art criticism to refer to works that select elements from different art periods and styles.

In the feudal system, production skills were used to meet the needs of the small aristocratic population, and for this reason, the quality and price of the products were much higher. Therefore, traditional production had compromised itself with the methods of producing small quantities with high quality, but after the expansion of the middle class, the *artisans* were gradually led to reduce the price and increase the quantity. Producers who were closer to these two criteria achieved greater economic success, so there was a huge effort and investment in developing the industrial technology. New technologies were not only economically attractive but also culturally and even emotionally valuable. This point can be considered the basis of the industrial aesthetics. With the specialization of production skills and separation of design from production, the creation of these emotional and aesthetic values in industrial products was left to designers, and it is not a coincidence that we can attribute to one person (for example, Peter Behrens).

3. Simplicity and the Rejection of Representation

Another important principle and meta-narration of modern design is the trend towards simplicity or minimalism. The phrase *less is more* has always been one of the most frequent narratives in modern design discourses. This sentence is attributed to Mies van der Rohe, but in some sources, it is mentioned that Mies van der Rohe has learned it from his tutor Peter Behrens! But who did Behrens learn this sentence from? Is the tendency to simplicity a movement that escaped the genius of one of these people? It is better to ask what is the role of context in moving towards simplicity.

Table 1: Examination of the evolution of furniture design from the Gothic era to the beginning of the 20th century.

Era	Representative of the era	Other samples from this era
Medieval and Gothic furniture		
Louis 15 furniture		
Louis 16 furniture		
First half of the 19 th century and Biedermeier		
Second half of the 19 th century and the beginning of the 20 th century		

The movement of productive forces from villages to cities caused the increasing expansion of cities and the creation of million-people cities. Settlements that were associated with a very high level of complexity. It is not strange that [Spencer \(2002\)](#), at the same time, considers the complexity to be a measure of modernity. Increasing complexity is also associated with increasing density. Urban fabrics were becoming denser every day.

Houses gradually became smaller, and along with mass production and increased purchasing power, houses were piled up with furniture and merchandise. The general reaction to this growing trend of density and complexity was the desire to simplify the environment, objects, and even social relations.

Table 1 shows the evolution of sofa design from the Gothic era to the beginning of the 20th century. In this test, examples of chairs have been selected in successive periods and their historical course has been analyzed in terms of complexity. The middle column (representative of the era), from top to bottom, shows that sofa design became steadily simpler from the Gothic period to the beginning of the 20th century.

The tendency for simplicity is noticeable not only in sofas but also in other products. Evaluating the historical data shows that society had a gradual desire for simplicity. The reception of *shakers* products, or simple and practical products of American industries, is a sign of this tendency. In other words, the trend of aesthetics has turned towards simplicity, and people like Behrens actually understood this underlying movement.

Rejection of Representation

The desire for simplicity is linked to another important feature, the rejection of representation, which by itself could be considered a canonical category. Rejection of representation means eliminating any unnecessary signs and features, especially *historical* and *natural* signs and instead, focusing on the main signification, i.e., *function*. In art history, it is acclaimed that following Cubism and Expressionism, ideas such as *Abstract Painting* which Kandinsky had launched in Germany or *Neo-Plasticism* proposed by *Piet Mondrian* are the initiators of this flow ([Gombrich, 1970](#)). In obedience to that, design history shows the fantastic presence of these prominent painting masters in the Bauhaus as an event that disseminated this meta-narration in design, and since then rejection of representation has been a recurring content in design history, but several arguments can be put forward to reject or, to modify this view:

- First, as mentioned, the trend towards simplicity was in the spirit of the era, this spirit has rejected extra signs and significations in the form.
- Second, after the Crystal Palace Exhibition (1851), most of the critics and intellectuals reached a consensus on the rejection of *historicism* and *eclecticism* (the rejection of historicism has been one of the important principles of the Art and Crafts group and also the Art Nouveau style). Words such as *Pastiche* or *Eclectic* were popularized to reject and humiliate that type of design.
- Third, the impact of modern arts, especially painting and formalist criticism, on this turn is undeniable. But this effect shouldn't be diminished to the presence of Kandinsky or Van Doesburg in the Bauhaus, but all designers, cultural intellectuals, and critics, as parts of the social field of modern art and design, have participated in modernism. this reciprocal action goes back to years before the Bauhaus.

4. Functional Design

After emphasizing simplicity and rejecting representation, the problem is: *what should be the content of modern design?* The design history literature's answer is that the main implication of modern design is *function*. Emphasis on function is so serious in modern design that postmodern critics claim that in modern design, the expression of function is more than function itself! Even Mies van der Rohe criticized the modern formalist approach ([Blake, 1998](#)). The history of modern design shows the origin of this approach from the *Deutscher Werkbund* and especially *Hermann Muthesius*¹ ([Sorensen, 2023](#)).

After that, *Le Corbusier* with the *house as a machine for living in* and the Bauhaus are mentioned as the important foundations of this meta-narration, but in this case, deep background roots can also be proposed, such as:

1. The sentence *form follows function* is one of the exile categories under this focal category, but there is a long background behind this. In design history, there is a consensus that *Louis Henry Sullivan* made this sentence famous ([Hesketh, 1997](#)) and after that, for more than a century, there were many discussions about this sentence and the relationship between form and function.

¹ 1861-1927. Especially after the Werkbund Conference of 1914, he was recognized as the spokesperson of this thought.

Discussions that have almost forgotten the origin of these discussions. The main point of these debates is the opinion of Frank Lloyd Wright, who considers form and function to be the same (Cruz, 2012), but what was institutionalized in modern design poetics was that function should be the main signification of the modern form.

2. Before thinking that the form is more important or the function, we should pay attention to the origin of the *form-function dualism*, how the form-function duality started? An important reason has been the inappropriate use of craftsmen to decorate industrial products, for example, cast iron fireplaces with a set of rococo stucco and there is no unity between them. As a result of this process, *form-decoration* was created¹. Decoration was rejected not only from the creativity and artistic value but also from the economic point of view. Adolf Loos in his seminal lecture and article *Ornament and Crime* (1913) mentioned this aspect and said: Decoration is a waste of work and as a result a waste of wealth (Fiell & Fiell, 2016). Over time and passing the problem of pastiche decorations, this duality becomes the duality of form-function, emphasizing that the most important principle or meaning in a form is its function.

3. Another point is *aesthetics of function*. As mentioned, before modernism, beautiful objects were usually considered to be elegant, decorated and specially made of precious materials. From the middle of the 19th century, an important transformation took place in the aesthetics of objects and tools, and for the first time (in the history of European design), decoration was criticized. From this time, people realized the beauty and attraction in simple and practical products. Machines such as locomotives, sewing machines, and pistols or simple products such as Thone chair No. 14 (1859) and Shaker products, without having any traditional decorative arrangements, seemed eye-catching and attractive to some people and especially critics such as Henry Cole and Gottfried Semper. An aesthetic tendency that grew from generation to generation and even elites like Le Corbusier became fans of it.

5. Rational Design

According to this meta-narration, everything present in the form of a product must have a rationale. The history of modern design also brings back the origin of this meta-narration to the beginning of the 20th century, especially German influencers like Hermann Muthesius. Now, the challenge of this research should also be raised for this meta-narration, how did rationalism become a principle for modern design?

1. First, it should be said that rationalism is considered the most important characteristic of all fields of modernism. The Age of Enlightenment² in 18th century Europe replaced religious belief with reason. So, naturally, this feature dominates all the cultural forms of modernism, not only design and architecture but also arts such as painting have been influenced by such a form.

2. Again, the formal language of the preliminary industrial products (in the middle of the 19th century) should be considered as a factor for promoting this criterion. Shoddy products decorated with massive and inept decorations formed the idea that design should follow the logic and rationality of the modern rational system. August Pere called the work of architects such as Antoni Gaudí with cement as whimsical and believed that architectural classicism requires logic (Blake, 1998). The discussion of logic in design, in the susceptible atmosphere of Germany at the beginning of the 20th century, shows the roots of this criterion in its social context.

3. In the background of the discussion about rational design, it has not been paid attention to the fact that rationalism in design has two aspects, firstly, the discussion of consciousness and logic in the process of designing and form creation itself, and secondly, the discussion of communication and the management of the conscious reception of the form.

In the first aspect, designers are expected to manage the design process by relying on logic and have a rationale for the existence of anything in the form. Industrial design is directly related to industry and management, Industry and management rely on logic, science, and measurable information, so design expertise as a member of this system must have this approach. Therefore, in the 1920s, the discussion of scientific design was raised (Cross, 2006).

¹ Another prominent criticism that has recently been raised is from the feminist movement, which believes that decoration has been removed from modern art because it was assigned to women.

² The Enlightenment Period or Age of Enlightenment is used in connection with the philosophical achievements of thinkers such as Voltaire and Kant, who laid the intellectual foundations of modernism.

The second aspect emphasizes the conscious perception of design by the audience. Part of the discussions surrounding rationalist design is about the way of perception. The patterns of perception and psychology of perception have played a prominent role in understanding design. As [Lynton \(2004\)](#) says, since the beginning of the 20th century, there has been a strong tendency towards the conscious and managed perception of the audience, which was the result of the flourishing and spread of psychological knowledge at the same time.

Gestalt theory of perception in the first decade of the 20th century presented unique accepted models for perception, which was popular among modern artists and designers, and based on that, they tried to manage the perception of the audience, rationally.

6. *International Language for Design*

The internationality of formal language is one of the ideals and meta-narrations of modernism. This ideal is one of the salient characteristics of modern design in such a way that *international design* or *international style* is one of the common titles of modern design. Based on this principle, the design should be usable for all the people of the world by relying only on the function, and should not make any distinction between the classes of the people. Apparently, the term *International Style* was first used and made famous by *Henry Russell Hitchcock* and *Philip Johnson* in an exhibition of the same name at the Museum of Modern Art in New York in 1932. Before them, *Walter Gropius* had described this idea in a book called *International Architecture* in 1925 ([McDermott, 2007](#)). According to [McDermott](#), it seems that this name was very popular in the 1930s. Of course, *Le Corbusier* also described this thought in some way in 1923 in the book *Towards a New Architecture* ([Le Corbusier, 2011](#)).

Contrary to this chronology, the meta-narration of the international language for design has deep roots in its social context. First, we must distinguish between universality during design and during perception. Keeping this distinction in mind, we can enumerate two contextual origins for this meta-narration:

1. The public space of modernism is highly totalitarian. Based on this totalitarian mentality, every school considers itself superior to others in every field and believes that it is the only final solution for mankind. Therefore, it is not strange that the theories of design and architecture also have the same characteristics as part of this authoritarian cultural horizon. It is interesting that internationalism is an important communist concept. The development of internationalism in Russia (after the revolution) led the designers and architects of that country towards this idea. The *constructivism* played an important role in the flourishing of the *universal language for design* slogan. Through the communications between Russian artists and Western European artists, this idea was spread to the West, especially the Bauhaus school, and because of susceptible context, it was well received in Europe. Very soon, European thinkers began to formulate their opinions in an international format.

2. As stated earlier, the *Gestalt* theory of perception was presented at the beginning of the 20th century. Based on this theory, the mind has pre-existing mechanisms based on those structures it organizes and perceives the received information ([Shapourian, 2007](#)). *Gestalt* theory claims that these structures are inherent and common to all humans. In this way, perception is the same in all humans and is based on identifiable rules. If we accept that all humans have the same perception, then it is obvious that everyone will be able to perceive the same design¹, of course, to attain that quality, design must not have any cultural and historical representation! Obviously, this idea was well received and absorbed in the art and design space of time. Therefore, *Gestalt* theory can be considered as one of the supports and even the main drivers of the international language approach to design.

7. *Originality of Materials and Structure*

The form of the products must be faithful to the intrinsic nature of the materials, this sentence was proposed by *John Ruskin* and was highly regarded by critics and experts of modern design and has become an important benchmark for future design.

¹ Today, this assumption is not accepted and we emphasize on *Situated Cognition*.

In his designs, Le Corbusier tried to create unity between the form of the parts and the materials used in them. For this purpose, based on the function of each part, the material was selected. This method is especially evident in his furniture design. For example, in the chaise lounge (Figure 3), the structure of the sofa, which must bear the load, is made of metal, and the upper part, which is in contact with the body, is made of cowhide. Many historians have considered Le Corbusier's design to be the implementation of the slogan of originality of materials (Blake, 1998). The Russian group *constructivism* also promoted this principle a lot and believed that new designs should be formed by understanding the structures and originality of new materials.



Figure 3: The chaise lounge, designer: Le Corbusier (Source: www.chicicat.com)

But what led Ruskin to this principle? In response, some contextual transitions could be mentioned:

1. The age of industry was accompanied by ever-increasing innovations in materials, But the problem was that these materials were not defined in design. That is, the craftsmen and designers of the 19th century used materials like cast iron and its molding technology with the same approach that was used before in traditional design. In traditional design, either precious materials (such as gold, silver, jade, and ivory) were used, or low-cost materials were made valuable by covering and decorating (such as paint, plating, inlay, and marquetry). In the oven in Figure 4, industrial manufacturing materials and methods have been used, but based on traditional aesthetics, an effort has been made to decorate the entire surface. This is despite the fact that the material used (i.e., cast iron) has a different emotional function, which makes this figure full of disproportionate and even disgusting decoration. Therefore, it must be emphasized that attention to the originality of materials originates from this lack of harmony between form and materials. In addition, in the early years of the 20th century, due to the development of engineering aesthetics, attention was paid to the inherent beauty of raw materials.

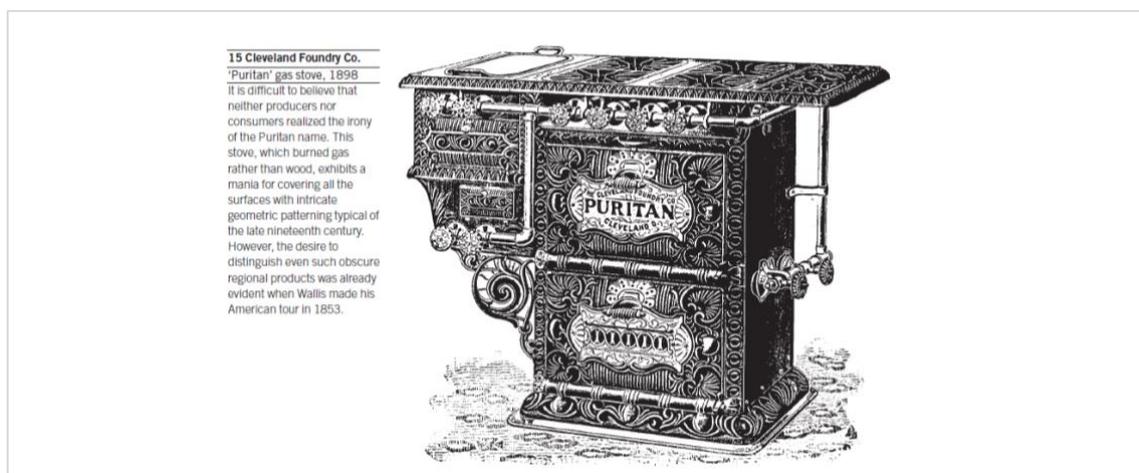


Figure 4: Oven produced by industrial method but with patterns taken from the tradition.

2. Among too many deep or superficial contextual factors, the confrontation with other design aesthetics especially from the Far East, should be considered. The architecture of the Far East, especially Japan, gave importance to the inner sense of material. This attention arose from a worldview based on respect for nature. From the 19th century, Western artists (including Van Gogh) and a little later, from the beginning of the 20th century, Western designers and architects (including Frank Lloyd Wright) paid special attention to the architecture of the East, especially Japan (Gruther, 1996) and one of the coordinates of Japanese architecture that influenced them was the discovery of the beauty of materials.

Conclusion

The questions of this research were answered in two steps. In the first step, the main principles and meta-narrations of modern design were extracted using the metasynthesis method.

These principles are placed in seven main categories, which are:

1. Modern
2. Industrial and mass production
3. Simplification and rejection of representation
4. Rationalism
5. Functionalism
6. Originality of materials and structure
7. International language.

The historiography and stylistics of modern design, based on the paradigm of genius-based creatology, have built an author-centered history for each of these categories. In the second step of this research, knowing that changing the perspective of fundamental concepts such as creativity can lead to a change in our understanding of similar styles and phenomena, relying on the genealogical method, the contextual roots of the emergence of these main categories were identified. The genealogical analysis of these categories shows that contrary to what the history of modern design shows, these principles are completely dependent on the context. In this connection, the following points should be considered:

1. Modern design is the result of interaction between form and contextual transitions, an interplay that has lasted at least a century to achieve its final synthesis. Changes in modern formal language have been driven by profound changes in social, economic, and technological structures in Europe, not by the genius of superhuman designers.
2. The relationship between the modern design and its context has not been a vertical and one-way relationship, but in a two-way coevolution, design has influenced other dimensions of the context too.
3. An important attribute seen in the categorization process is the connection and correlation between these criteria. For example, the growth of industry and teamwork in the factory has led to the expansion of rationalism in design, and on the other hand, the expansion of rationalism and attention to science has led to the improvement of the industry. This rationalism has provided the ground for paying more attention to the function of the product, and functionalism has made it easy to remove the implicit significations from the form. In the discussion of aesthetics, breaking away from traditional aesthetics has provided the basis for seeing characteristics such as simplicity and functionality as beautiful.

In this way, it can be said that these principles themselves act as contextual actors for each other. A change in any of these principles will lead to a change in other components. Therefore, we have a two-axis relationship that is continuously ongoing both vertically between the form and elements of the context (social, economic, technological, and creative artistic languages) and horizontally (between challenges, solutions, and designers).

4. Despite the emphasis that this research has on the role of the context and negation of the individual agency of elite designers, the role of individuals and even institutions is not neglected.

The difference between the approach of this research and author-centered historiography is that here the role of people in the context is emphasized, not in the style, in other words, people (designers and artists) are parts of the context and emerge from it. Therefore, the polygon of contextual factors has two other actors named author and institution.

Limitations and Future Studies

This research had some limitations and obstacles, including the fact that access to some resources was very difficult. Also, reading all the resources was very time-consuming. Another problem of this research was the quality of translation of some sources into Farsi, which made categorization difficult.

For future studies, we suggest making a hierarchy of the principles based on time and region, contrary, or the fields of design.

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