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# National art and futuristic ideas in the formation of modern Kazakh design of the architectural environment

Arte nacional e ideas futuristas en la formación del diseño moderno kazajo del entorno arquitectónico

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## ABSTRACT

**Introduction:** The main focus of this article is reimagining national heritage in shaping the architectural environment with contemporary interpretation and transformation techniques using computer technologies. The aim is to study the symbiosis of the use of folklore culture texts and modern trends in architecture and design. **Materials and Methods:** The research methodology is based on modern general scientific methods such as the structural-systematic method, which is fundamental for determining the originality of the semantics of the works of professionals of modern design. The study also uses a structural-comparative method in comparing the traditional and the modern. **Results and Discussion:** As a results – there is a massive interest in different art movements in the modern world. We can see how they influence each other and interconnect. With regard to architecture and design, in particular, the concept of fusion, synthesis or a new understanding of the old artistic experience is a well-established technique. **Conclusions:** With Kazakhstani masters, the focus is primarily on the artistic and flexible possibilities of decorative and applied art and the architecture of a mobile home - a yurt. In the age of globalization, there is an increasing interest in the features of ethnic identity everywhere, including Kazakhstan.



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## INTRODUCTION

As with any other process of dialectical development, culture has both stable and innovatively developing sides. The stable side of culture is cultural tradition through which the accumulation and transmission of human experience take place in history. Each new generation of people can comprehend this experience by basing their activities on what was created by previous generations. In so-called traditional societies, people reproduce the previous models by incorporating culture, and even if they bring changes, the framework of tradition is preserved<sup>(1)</sup>. Culture exists on this basis. Tradition takes precedence over creativity. Creativity manifests itself in the fact that a person is a subject of culture, which is a set of stereotypical programs consisting of actions with objects (customs, rituals, etc.).

A cultural tradition, stable under certain conditions, is necessary for the survival of human groups. Some societies reject hypertrophic traditionalism and develop dynamic forms of culture, but this does not mean that they can abandon cultural traditions altogether. Culture cannot exist without tradition<sup>(2)</sup>. Cultural traditions as historical memory is a prerequisite not only for the existence and development of culture but also for the formation of creative qualities of a new culture. Tradition suggests continuity and assimilation of the positive results of previous experiences. This is a general law of development applied in the field and is especially important. The practical significance of this issue testifies to the experience of our country<sup>(3)</sup>.

We realize that culture is one of the parts of a unified socio-cultural process, which also includes personality as the subject of the interaction and society as a combination of those interacting subjects. Where there is no culture, there is no society and no personality; where there is no society and no personality, there is no culture. Material sources objectify ideal images, make them socially significant, perceived and shared by members of society. Taking into account the socio-cultural process, which ensures the unification of culture and the processes of globalization, can be recommended for designing the environment. In the current polycentric world, researchers use scientific point of view to approach the object of architecture and design. It allows for a certain “axiological” flexibility, and more freedom leads to a definition of the object’s properties<sup>(2)</sup>.

It should be noted that in the Soviet historical encyclopedia, the concept of “nomadism or nomadic image” was defined as a certain form of economic activity and associated lifestyle that arose during the first major social division of labor as agriculture became a kind of independent economy. The term “nomadism” is sometimes understood as the lifestyle of collectors, hunters, and fishermen (for example, Aboriginal Australians, Plains Indians, etc.)<sup>(2)</sup>. Clarification of the concept of “New Nomadism” leads to the study of real, authentic nomadism and intellectual nomadism, the features of which are not fully developed. According to the definition by G. Deleuze, nomadism is a free path of thought which is dynamic in nature and never stops<sup>(4)</sup>.

“New Nomadism” is similar to the archaic one, but has many features of modern life, reflecting a different nature and form of expression. According to M. Maffesoli, the inevitability of the nomadization of modern society leads to the transition of the natural into the social. At the same time, with current globalization happening in the background, we observe glocalization in Kazakhstan. That is, instead of the disappearance of regional differences, they are preserved and strengthened. The interest in the culture of nomadism is genuine. Mobility, one of its most remarkable features, is relevant in the practice of design activities of architects and designers of Kazakhstan. In line with the current world trends, domestic craftsmen strive to comprehend cultural heritage with the technical capabilities of modern times. For example, by using parametric design techniques<sup>(5)</sup>.

Parametric architecture also known as algorithmic system existed in avant-garde design for more than ten years, but has become one of the leading trends of the digital age due to the recent development of computer technologies. Parametric design that is based on more technological ideas entered all areas of our lives and created new aesthetics. Industrial designer Patrik Schumacher from the famous Zaha Hadid architectural firm, one of the main ideologists of parametricism, is certain that we will soon be surrounded by objects created by humans and computers together. Terms “algorithmic design” and “digital design” are usually associated with something inanimate, artificial, something foreign to human nature and to nature at large. This opinion, however, quickly changes when one sees the world of the designers who use parametricism. Sometimes it is hard to believe that life, even in forms of building or jewelry that look like corals, was created by a computer. Computers gave us tools to create shapes that are intricate and natural. Zaha Hadid architectural firm is considered to be one of the most influential in the world of parametric design. One of their most famous projects is Madrid Civil Court of Justice. Its blueprints and design is currently studied all over the world.

## MATERIALS AND METHOD

During the research process, innovative and digital methods of designing modern interiors and objects in the aspect of comprehensive solutions to housing construction problems, and new methods of applying traditional forms in modern designs were considered. The methodology and methods of research are determined by a comprehensive interdisciplinary approach to the study. It manifests itself in the use of the results of culturological scientific research relevant to the topic, and study of the issue from the perspective of aesthetics and history. In particular, an axiological analysis was conducted. Cultural traditions are considered a way of transmitting values.

The results obtained with this methodology are systematized on the basis of a schematic and structural method of presenting information suitable for understanding by specialists from various related branches of the design field. The research methodology is based on modern general scientific methods such as the structural-systematic method, which is fundamental for determining the originality of the semantics of the works of professionals of modern design. The study uses a structural-comparative method in comparing traditional and modern, as well as comparative studies – a comparative analysis of the creative methods of designers who use folklore culture texts.

One of the examples is topological optimization, which, in recent years, has been very actively used by designers and engineers. The power of modern computers is already sufficient for the use of genetic algorithms, when millions of possible combinations of parameters change with a given end result, for example, minimum weight with sufficient rigidity. The resulting drawings are not similar to those created by man but resemble creations of nature. There are no examples of using this method in our country yet due to the lack of proper technical training, but there is already an interest in the aesthetics of the parametric form of design. There are examples of interior solutions of public buildings. It should be noted that the design of the yurt itself is an original example of parametric design.

In the arsenal of modern designers, there is both interpretation and examples of the transformation of traditional shapes, including those created with the use of computer technology, and rethinking of national heritage. Some examples of works can be transformed so drastically that the context of tradition is practically not visible without the explanation of the authors themselves. We can be amazed by the symbiosis of the use of folk culture texts and modern trends in architecture and design. An excellent example is the creative works in interior design by N. Kamitova, E. Shishkova, E. Khasanova, B. Amanzholova, in the object design of A. Abdulmazhitova, T. Aktaev and others. Separately, it is worth mentioning T. Kuzembaev, who works a lot on the topic of regional design. He does not only create pieces in design and architecture, but also designs contemporary art objects.

## RESULTS

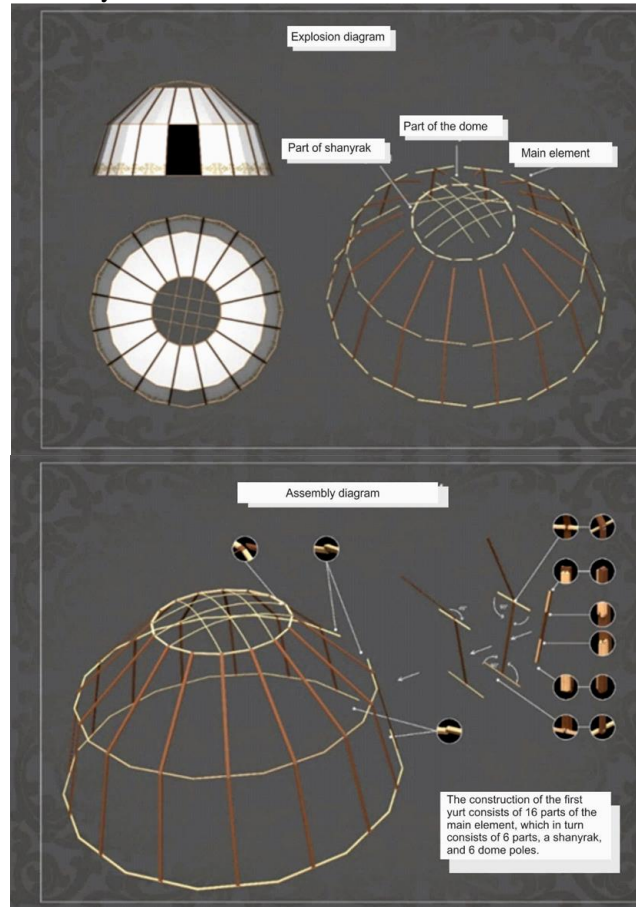
### **New aesthetics of parametric design**

Parametric design allows to model the logic of nature's thinking. Objects created in the parametric style stimulate the imagination. It can be assumed that the new aesthetics becomes a part of our lives much slower than, for example, minimalism. In the near future, decorative and applied art and design are going to strongly depend on parametric design. We will see changes in things like furniture, jewelry, watches, cars, cell phones, clothes. For example, an armchair or sofa that can be easily adapted to your mood, the weather or the color of your clothes. Current technology does not allow this, but it will certainly happen in the future.

Unprecedented creative freedom is one of the most pleasant features of parametric design. This approach responds perfectly to the variability of various criteria of our reality, makes it possible to quickly create very complex shapes, which is not easy with standard design methods. Parametric plugins for various graphical modeling packages such as 3D Max, Autodesk or Rhinoceros, are used by designers. Sometimes new programs appear on the market without accompanying documentation or educational material. In his article "Parametrism" Patrik Schumacher predicted a "war of style" in our society, which will acquire a new natural style. Postmodernism has practically disappeared, as has deconstructivism, and not by accident.

Based on the information presented above, it is safe to assume that design is a project and, therefore, the transformation of elements of ethnic artistic material of culture is one of the given vectors of its use in modern conditions of artistic design, including the whole complex of mobile forms of housing (Figure 1-2).

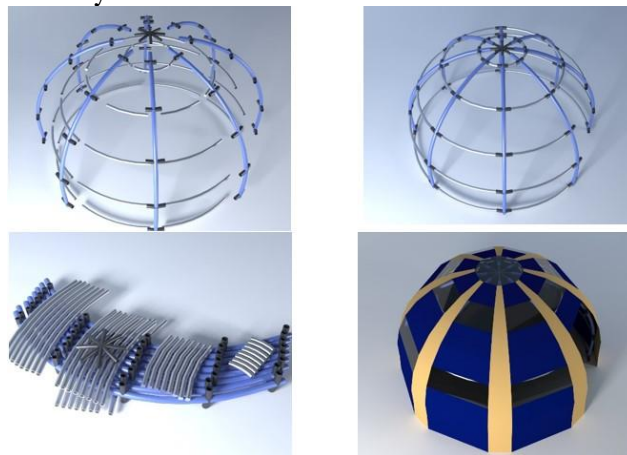
**Figure 1. The concept of a modern yurt.**



Source: developed by the authors.

The authors of the study, Zh.A. Imanbayeva<sup>(6)</sup>, L.T. Nurkusheva, K. Pokhlamkova, V. Tsoi proposed two options for using the yurt in modern life. One of them is an interpretation (Figure 1), and the other is a complete transformation (Figure 2).

**Figure 2. The concept of a modern yurt.**



Source: developed by the authors.

Currently, the assembly concept shown in the figures is proposed. The construction of the first yurt consists of 16 parts of the main element, which in turn consists of 6 parts, a shanyrak, and 6 dome poles. Some skill is needed to assemble the yurt. The main elements of the frame must be connected in a way that they are fastened into a stable



shape. For this, the lower and upper vertical parts must be rotated 90 degrees and connected to similar vertical parts rotated 49 degrees. This technology of manufacturing and fastening elements is called the "groove spike method". The felt coating is attached to the structures with magnets. In disassembled form, parts of the yurt can fit into a professional hiking backpack (Figure 1).

The second yurt is designed with innovative materials in mind. The main conditions were the preservation of the collapsible structure, convenient transportation, low weight of the structure, and resistance to geographical features and weather conditions. The solution was the creation of a new design for the mobile living cell. It is a hemisphere or geodesic dome. The structure is fully collapsible, which makes it easy to transport. As a covering, an awning material, which compensates for the weather conditions, was selected. The color scheme is quite bright due to the choice of two complementary colors of blue and a shade of orange. The lighting in the living cell is natural. Materials of a modern mobile yurt: aviation aluminum, a group of alloys of the aluminum-magnesium-silicon system. It is suitable for the main arcs of structures, a durable, flexible material. The outer covering is an awning, the fabric covered with PVC, which is moisture-resistant. A dense and suitable material for the covering will protect against weather conditions. The frame of the yurt will be made of polymer pipes — a cylindrical product made of polymer material, hollow inside, which makes the pipes light. An excellent material option for transverse arches of structures, crosspieces and bushings (Figure 2).

### **Interpretation of forms of decorative and applied art in the modern design of the architectural environment of Kazakhstan**

One of the conceptual projects with the interpretation of the traditional principles of construction of mobile types of forms was proposed by the workshop of T. Kuzembaev. He proposed the construction of a resort area in close proximity to the main highways of Astana, near the administrative part of the city and the park area of the Ishim River. The proximity of the railway station, cultural centers and a golf club would allow the area to be popular among citizens and guests of the capital (Figure 3).

**Figure 3. Technopark “Ishim”, cottage “Mirabel”.**



Source: Architectural workshop of Totan Kuzembayev<sup>(7)</sup>.

The area was proposed to be placed along the perimeter of a triangular-shaped space formed by the intersection of two main road lines (Figure 4-5).

**Figure 4. The architectural concept of the Ishim technopark. Axonometry.**



Source: Architectural workshop of Totan Kuzembayev<sup>(7)</sup>.

From the north, almost a third of the area is occupied by a complex of commercial buildings – hotels and a residential area built on the banks of a small river. The object “steps over” the river, passing it between two towers – “pillars”. The concept of the compositional solution is based on the principles of historical associations related to the chronicle of the life of the nomadic population in the region.

**Figure 5. The architectural concept of the Ishim technopark. View of the hotel complex.**



Source: Architectural workshop of Totan Kuzembayev<sup>(7)</sup>.

The whole project proposal was developed in the spirit of T. Kuzembaev's style preferences, in an effort to preserve the ecological and aesthetic features of the traditional mobile type of nomadic architecture. Despite the quite modern look of the architecture of the complex, there is a direct connection with the original source. For example, in the roundness, the active use of wood, a frame system resembling a kerege, in some places, the wooden supporting walls of the house are covered with felt. Outside the terrace, diagonal fencing (the same principle of kerege) also resembles a European gazebo. It can be covered with ivy. Another distinct feature is the constructive base of the Kazakh yurt (which was traditionally carried in felt).

T. Kuzembaev offers to place villas on the territory of a technopark (in the spirit of Venetian equivalent). As a figurative solution - a new interpretation of the Kazakh yurt - a kind of inside-out type of structure, where grating is on the outside, felt inside, and there is no dome. In fact, this is a deconstruction of the image of the yurt, since the similarity is indirect: there is no literal adherence to the traditions of folk architecture. The result is something in between, with the traditional shape of a gazebo. In the resort part of the project proposed by him, of course, it is necessary to preserve the image of the Kazakh Eden (Figure 6).

**Figure 6. The architectural concept of the Ishim technopark. Villa "Mirabel".**



Source: Architectural workshop of Totan Kuzembayev<sup>(7)</sup>.

The work of T. Kuzembaev at the exhibition of the Astana Art Energy Festival. The art object is a reinterpretation of the image of the yurt (Figure 7).

**Figure 7. Art object yurt.**



Source: Architectural workshop of Totan Kuzembayev<sup>(8)</sup>.

## DISCUSSION

By focusing on more specific, but relevant issues, we were able to comprehend the essence of the meaning of material architectural shape in all its aspects. Attention to home is one of the most important, “intimate” contexts in which people interact with architectural forms, the context that forms the boundaries of the private and the general, the context of gender, social and sexual roles and relationships: it gives us an understanding of how architecture creates the meanings of human life, forms and maintains social relations, and at times reveals its structure<sup>(9)</sup>.

In the authors' research on the development of transformable elements in the object-spatial environment, it can be learned that “the feature of the modern understanding of the processes of shaping is the consideration of the elements of the object-spatial content in the aspect of their utilitarian, environmental, historical and cultural conditionality. The basic functional parameters, the optimal service life, and the role in the shaping of space are very important here. Accordingly, the process of adapting forms to the degree of a subsequent change in the function of both the space of a specific cultural-specific phenomenon as a whole or its individual fragments and the functional and semantic content of each element is actualized. Moreover, a specific feature of this process is the possibility of one or another transformation of the element in accordance with changes in applied or semantic application”.<sup>(10)</sup>

The characteristics of everyday life and craftsmanship are based on a valuable set of standards that help to develop and assert the status of an original design that does not contradict traditions and secular cultural heritage. After analyzing modern requirements, living conditions, and methods of operation, we have identified the main types of yurts in Figures 8 and 9.

**Figure 8. Modern types of yurts by functional purpose.**



Source: developed by the authors.

In Figure 9 can see modern types of yurts in operation.

**Figure 9. Modern types of yurts in operation.**



Source: developed by the authors.

The analysis of specific craftsmanship factors in Russia, Japan, and Kazakhstan allowed us to identify the social, philosophical, psychological, political, and national originality of the design and determine the influence of traditional decorative and applied art<sup>(1)</sup>.

Japanese theorists do not make distinctions between design and traditional craftsmanship. The production of consumer goods in the framework of Japanese design is inextricably linked with traditional culture, customs, beliefs, Japanese family life, landscapes, and weather conditions. The traditional “microcosm” of the Japanese culture of arts and crafts has found its expression in modern design. European designer E.Sottsass defines it as “the highest class of craftsmen - artists – thinkers”<sup>(1)</sup>. In the era of glocalization, the methods of modern design and innovative materials have almost completely changed our familiar world and its understanding. We can see this by its distinct functional features and



the way of design thinking. Modern innovative materials and technologies are increasingly changing our living environment, which leads to a number of household items unique in typology, design and method of production. This is especially noticeable in the current lines of functional objects”<sup>(12)</sup>.

We can conclude that the evolution of decorative and applied art in a historical context forms a coherent chain: part of life - the museum part - the object of transformation in design. In this regard, traditional folk crafts, like any true art, should awaken creative energy and make people spiritually richer. The return to the traditional business model, its development in modern world, is connected with the conscious attitude of this activity, the work of the designer and the products of this work. The metaphysics of work is recognized as the real basis of life for each person and for their assessment from the society. That is where a more personal attitude to the world of objects and things comes from, and that is why design should express human feelings, regardless of mechanized production. These attempts are interpreted as “the experience of mimesis in designing, recreating values in a new historical context,” i.e. the experience of reproduction of ethno-cultural identity in the conditions of modern development of society<sup>(13)</sup>.

In the middle of the previous century, the term “design” was meant specifically for the activities of the industrial artists, while an item or a complex system of them was equated to the term functional organization of human activity. The concept of the comfort of the material content of the living space, and the concept of the comfort of functional life activity have become the main tasks of industrial designers. The task of modern industrial designers in comparison with specialists of the Soviet and early post-Soviet times differ in structural methods of approach to design. During the era of shortages, consumers bought anything they could buy, bought what was on the shelves. Nowadays, the consumer is “globalized” and more informed, they will always have a choice. A modern creative designer should be able to anticipate what a modern consumer needs, to be able to create a new product of object design, that is, each project should be considered through the prism of design research, study, and development<sup>(14)</sup>.

The tactical component of design in the modern world requires an ideology of effective design of human characteristics, from the functioning to the specific life features of the proposed object, through the architectural and conceptual design of these processes. The depth of the point of view opens up a whole range of design options for the designer and enriches their range in the artistic sphere. Thanks to the experience of decorative and applied arts and other types of art, the professional training of designers is an important task in ensuring the quality of future professionals.

Despite the fact that national traditions in general are of great importance in Kazakhstan, decorative and applied art plays a fundamental role in the professional training of designers. The difference between art and the mastery of other types of art lies in the active stylization of the surrounding world. Nature, animals, and plants are represented in visual decorative patterns. It is not just thinking about the real world; it is knowing its inner form. A special place in the generalization of knowledge about the world lies in the pattern. It is everywhere in the architecture of popular styles, and it shows the features of applied craftwork, and plays a significant role in the further development of art and design.

## CONCLUSIONS

There is a massive interest in different art movements in the modern world. We can see how they influence each other and interconnect. With regard to architecture and design, in particular, the concept of fusion, synthesis or a new understanding of the old artistic experience is a well-established technique. With Kazakhstani masters, the focus is primarily on the artistic and flexible possibilities of decorative and applied art and the architecture of a mobile home - a yurt. In the age of globalization, there is an increasing interest in the features of ethnic identity everywhere, including Kazakhstan.

Based on the results of the study, the following conclusions can be drawn:

- The widespread use of innovative materials and technologies necessitates the search for new approaches to the development of professional competencies of specialists working in the field of design.
- The constant growth of the array of technologies and production skills allows us to offer the consumer a much greater variety of products than in the past, which gradually creates the need for the more frequent appearance of new products and expansion of the already trusted and tested properties.
- Due to the accelerating time of replacing the used product with new and natural needs of the trade sphere in increasing the frequency of purchases, new tasks are emerging in the field of design and production. They are associated with a different approach to the durability of products and the convenience of their use.
- The consumer is more innovation-oriented, and it is important for the designers to master as much knowledge on the history of the development of the artistic and utilitarian unity of crafts as possible. It allows historical remakes to be put forward as innovations demanded by the consumer using features inherent in ethnocultural stereotypes.

- Futuristic innovations in modern design include all aspects of the traditional artistic heritage. With their help, we can model new types of imaginative solutions to the forms of a complex of residential objects. To an even greater extent, innovation and variability of folk art motifs are specific to the constructive and artistic solution of interior design.
- Futuristic innovations concern not only the visual stylistic solution of forms in the design of the architectural environment of modern structures but also innovations in the design of forms using modern technologies. A good example is our students' projects and experiments.
- In modern architectural practice there are proposals for a variety of functional uses of traditional types of mobile forms of nomads' dwellings; for example, as libraries, educational complexes, etc.

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