



Experimental Trends in the Design of the Architectural Environment of Ukraine in the Second Half of the 20th Century

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The aim of the article is to analyse the experimental trends and theoretical concepts in the architectural environment design of the second half of the twentieth century that reflected changes in the political, social, and cultural spheres. *Results.* The study analyses the experimental trends in the design of the architectural environment that emerged in Ukraine in the second half of the twentieth century. It is noted that some of these trends manifested themselves in the design of new buildings, cities, and architectural complexes. The significance of the experiment and its implementation in the architecture and design of the specified period are explored. The focus is placed on such experimental areas as the rethinking of geometric spatial perceptions and spatial concepts in design theory and practice; the application of geometry in the formative practice of design and architecture; the development of kinetic form generation practices; the spread of experimental design; and the development of bionics in experimental creativity and research in the 1960s – 1980s. It is argued that the processes of architectural and design development in Ukraine during the second half of the twentieth century were closely linked to global trends of that time. A comparison is made with the work of famous international designers such as R. Fuller, E. Piñero, and D. Hambidge. *The scientific novelty* lies in identifying the historical patterns of architectural and design development of the second half of the twentieth century, highlighting the experimental design trends of that period, and in establishing their connection to global trends in artistic and design activities. *Conclusions.* The analysis of the development of architectural design in Ukraine during the second half of the twentieth century is conducted through the prism of the concept of “experiment”. Experiment has always been an integral aspect of human activity in all its forms. It is revealed that in circumstances where the creative process is not influenced by external factors, particularly ideological and political ones, the experiment becomes an organic component of the architectural and design system of form generation. It is argued that the diverse search movement that took place in the creative environment of the Soviet era was interconnected. The creative and conceptual achievements of the experimental search were on par with global achievements in similar directions. However, the “experimental and search laboratory” of the Soviet period was too detached from real life, focusing on formal foundations, ideas, and principles of things rather than specific objects or their projects in a complete form. The research shows that the technology of form generation and the formal and aesthetic language of architecture and design have inexhaustible reserves for external enrichment. The active cross-cutting search, which continued for a relatively short period, demonstrated this potential. One of the main consequences of the Soviet “experimental research laboratory” was the confirmed need to implement certain functions under constraints characteristic of the “live” process of forming the subject-spatial environment. It is revealed that experimental trends in the design of the architectural environment in Ukraine in the second half of the twentieth century reflected a wide range of changes in society, culture, and politics. They influenced the development of the architectural environment, creating new innovative approaches to design and construction, and also reflected the national identity and cultural heritage of Ukrainians.

Keywords: design of the architectural environment; design practices; design history; experiment; experimental design; space concept; geometry; shaping; bionics; Soviet period

For citation

Bodnar, O. (2023). Experimental Trends in the Design of the Architectural Environment of Ukraine in the Second Half of the 20th Century. *Bulletin of KNUKiM. Series in Arts*, 48, 117–124. <https://doi.org/10.31866/2410-1176.48.2023.282473>

Introduction

Contemporary assessments of the Soviet period's artistic phenomena are often biased, due to the negative attitude of researchers to the ideological and political conditions of the society of that time. The specific nature of these conditions was characterised by the state's heavy interference in creative processes, with the intention of aligning them with ideological and pragmatic development principles in all spheres of life. As a result of this influence, an unofficial, uncontrolled movement emerged in the field of architecture and design in Ukraine in the 1960s, which assumed freedom of creativity but did not yield direct practical results and complicated the situation in the art and design industry as a whole. This study examines and analyses the complex picture of the recent past through the prism of the concept of "experiment". This approach enables not only the identification of distinct patterns in the creative processes of architecture and design in the second half of the twentieth century but also an understanding of their connection to global current trends in artistic and design activities.

Recent research and publication analysis. The history of the second half of the 20th-century design has been covered in various aspects by foreign and Ukrainian researchers. M. Droste's work *Bauhaus: 1919–1933: Reform and Avant-Garde* (2015) explores the fourteen-year period when the German Bauhaus School of Art and Design changed the face of modernity. The author E. Wilhide (2022) examines design within technological, cultural, economic, aesthetic, and theoretical contexts, cites iconic works that mark significant steps forward or characterise a particular era or approach, and outlines the framework of ideas, intentions, and technologies in which various design approaches developed.

Among the domestic authors, V. Danylenko (2006), O. Kostyuchenko and V. Symonenko (2020), T. Malik (2003), and others have addressed the features of design development. R. Wittkower (1995), S. Giedion (1941), R. Arnheim (2004, 2009), and others have focused on spatial concepts. Such scholars as M. Yakovlev, V. Mykhailenko, V. Timokhin, N. Kutsenko, and N. Shebek have explored the role of geometry in architectural and design creativity in their studies. Despite the wide range of issues covered, the history of Ukrainian design in the second half of the twentieth century still requires filling the gaps related to experimental research, conditioned by both the ideological guidelines of the Soviet era and the rational and creative approaches of designers and architects.

The aim of the article is to analyse the experimental trends in architectural environment design of the second half of the twentieth century.

Results

Experiment and its manifestation in the history of Soviet architecture and design. An experiment has always been an integral aspect of human activity in all its forms. The initiative to experiment is a natural human need, a prerequisite for change and improvement. And the more advanced human development becomes, the further it moves away from the primary forms of life, the greater is the importance of experimentation, and the more space it occupies in processes of various kinds and scales. This is especially evident in the evolution of art and design. In ancient historical epochs, experimentation (if understood as the preliminary testing of creative ideas, their approbation before implementation) was practically absent from the structure of the creative process. For example, in architecture, testing was carried out through the actual construction and the life cycle of buildings.

The implementation of the projects was absolute, and the design technology was waste-free. There was no need for experimentation as a parallel creative process. The slow pace of social and technical changes that influenced architectural and object forms allowed the creators to keep up with these changes within the design process and do without additional experimental testing of projects.

However, with the progress of science and technology and the overall development of society, this favourable correspondence is slowly breaking down. The creator begins to struggle to keep up with the pace of external changes, and he or she gradually loses the ability to quickly assimilate social and technical innovations, to assess the viability of creative ideas using design methodology. It is necessary to complicate the creative process in architecture and to perform additional research and testing activities in the overall technological process.

Experimental functions are developing in the structure of design and architectural activity, covering a variety of problems related to design and implementation. The experiment becomes an essential component of the overall process of forming, ensuring its creative quality, stock, and selection of the best ideas. In ideal social conditions, in which the creative process is not subject to any outside influences (including ideological and political ones), the experiment is organically combined with the entire architectural and design system of forming, and all its levels are evenly saturated with experimental creativity. With some conventionality, we can talk about three main levels: the primary or pre-design, the actual design, and the level directly related to the implementation issues.

However, in the conditions of Soviet society, which was itself experimental and was built in vio-

lation of fundamental social and economic principles, the status and role of experimental activity in the field of design and architecture had their special features. From the point of view of identifying these features in the development of Soviet architecture, several distinctive periods can be distinguished. The first is the period that took place immediately after the revolution. It is characterised by the fact that all the energy of experimental research is almost entirely concentrated on the pre-project level. At the same time, the traditions of the classical past were rejected in an attempt to start from “scratch” and create a new formal basis for the architecture of a new society. The avant-garde of the 1920s was a vivid product of this period. During this period, innovative initiatives covered all areas of design. At this stage, the experiment was primarily conceptual and searching, even though it also had some specific practical outcomes (for example, constructivism and functionalism).

The second is the period of the Stalinist era. It was an experiment that essentially aimed at creating a socialist style in painting, graphics, architecture, and design, and it completely shifted to the level of project implementation. Once again, the creative heritage of the past is rejected. Instead, a return to classical traditions and the methodology of decorativism is demonstrated. The futility of this approach becomes apparent against the backdrop of the rapid growth in the need for mass construction that took place in the postwar years.

Once again, under the guise of a sharp rejection of the methodological principles of the previous stage, another period of experimentation begins. It was the so-called Khrushchev Thaw. “Away with the excesses!”, i.e., away with everything that has a purely decorative value and hinders the pace of construction. This is the new creative slogan of design and other types of creativity. Nowadays, fashion is dictated by the engineer-technologist who initiates a technological experiment. Architecture and design, and mass construction are becoming industrialised. Thus, the experiment moves to the level of implementation issues. At the design level, the creativity of the designer and architect becomes subordinate. A system of standard design is being developed. It ensures the rapid replication of projects and, ultimately, the rapid pace of industrial construction.

The negative consequences of the technological experiment became apparent in the 1960s, with its first practical successes. This is a tendency towards simplification and uniformity, towards aesthetic impoverishment, the formation of image stereotypes in the architecture of mass buildings, and in the external features of the entire object-spatial environment. Therefore, it was a predictable outcome of the

one-sided approach to the policy of creativity, that is, an approach based on the principles of unification and standardisation, without considering the active role of artistic and creative initiative. However, this time, unlike previous experiences, the negative consequences of the experiment did not cause a sharp change in architectural policy. In general, the course towards technologisation has justified and continued to justify itself in the context of the current social tasks of arranging the design environment.

At the same time, all the issues and contradictions generated by technologisation have created the preconditions for another round of creative experimentation. This time, the tasks and orientation of the experiment are not planned from above. Experimental impulses arise in the professional design environment as a natural reaction to the actual creative and, above all, artistic problems of the situation, as attempts to make a breakthrough beyond, so to speak, the official channel of creative thinking, which is dependent and limited.

Innovators — “free-spirited” creators who appear in design as well as in related fields, such as arts and crafts — see their role as generating new formative ideas and actively developing the palette of techniques and means of forming. Therefore, now the experiment is returning to the pre-project, i.e., the fundamental level. As in the avant-garde of the 1920s, it is characterised by, on the one hand, a deep search, a return to the basic foundations of form-making; on the other hand, the diversity and variety of explorations, and the extension of the experiment to all areas of artistic creativity.

At the same time, the experiment of the 1970s through 1980s was characterised by high research activity, in particular the development of the so-called “crossover” searches aimed at the fields of science, technology, and nature, i.e., beyond the sphere of artistic form-making itself. If we recall the specific directions and themes of the experiments of this period, first of all, these are searches related to the problems of form formation. In particular, they are developing in the direction of deepening and using the knowledge of geometric patterns of forming.

In the 1970s and 1980s, the area of architecture and design witnessed, without exaggeration, an explosion of interest in geometry. Examples of abstract geometric modelling, specific geometric research, and design creativity based on geometric ideas are widely spread. Geometry becomes a source of renewal of the architect's and designer's formative palette.

Reconsideration of geometric spatial representations and spatial concepts in design theory and practice. The fundamental prerequisite for the experimental nature of methodological and creative activity in

the direction of geometric forming was the restructuring of philosophical thinking in the creative environment of architecture and design, in particular in terms of the concept of space. Undoubtedly, powerful “wave effects” emanating from the depths of the natural sciences tangentially influenced the state of spatial representations in the field of art. However, the undermining of the classical concept of space in art was caused primarily by creative, in other words, purely internal processes that did not directly depend on the events of scientific life in the early twentieth century. In the creative environment of this period, there was already an awareness that the artist's means of spatial expression had lost touch with contemporary life. The emergence of Cubism in Paris was the result of specific efforts to restore this connection.

The notion of “spatial relations” developed by the Cubists reflected the plastic principles of the modern approach to world perception. The philosophical processing of new ideas about space by art theory and their development into the concept of “space-time” occurred later. A well-known researcher of the theory of space in architecture, R. Arnheim, considers the space concept in connection with the studies of the patterns of visual perception of the object-spatial environment (Arnheim, 2004, 2009).

The primary concept of space, which emerged in science and art as a result of direct perception and corresponds to Euclidean geometry, helped to understand architecture “as a skilful arrangement of structures” within a given continuous space. According to R. Arnheim (2004), “However, this primary concept does not correspond to modern physical knowledge and does not coincide with psychological knowledge of the perception of space. Mutual influence defines the space between material objects. Distances can be described by the amount of energy an object perceives; by the gravity that binds separate bodies; by the time it takes for one body to reach another. Space does not exist physically if it is separated from the energy that permeates it... its perception (experience) is achieved only through the interconnectedness of objects. Thus, Arnheim concludes, spatial perception is possible only in the presence of perceived objects”.

The process of theoretical rethinking of the spatial concept that was carried out in the field of design in the first half and middle of the twentieth century was of fundamental importance. Examples include the restoration of cities and buildings in the postwar years when architects and designers tried to correct old flaws and added new objects as a result of rethinking space. This is how Khreshchatyk, the central street of Kyiv that was completely destroyed during the war, was rebuilt. In 1949, a project was proposed for the restoration of Khreshchatyk, which envisaged

changing its layout, although there was a “respect for superficial decorativism” (O. Vlasov, A. Dobrovolskyi, V. Yelizarov, O. Malynovskyi, B. Pryimak). The spatial changes were associated with the reconstruction of the pragmatic design methodology, and its transition to a new understanding of space and time. Indeed, for the first time in the history of art and design, such a principal reconstruction of the fundamental concepts of space and time that underlie the scientific construction of art theory took place. This process vividly demonstrated the tendency of interaction between scientific and artistic and philosophical thought, their complementarity.

The application of geometry in the formative practice of design and architecture. In the actual form-making practice, specific methodological approaches, types of form-making tasks, and an arsenal of form-making techniques and tools have been formed under the influence of industrial production technology. Let us consider some of them.

First of all, we are talking about a group of tasks related to the problem of the “standard of diversity”, which is typical for industrial production. Its condition is the creation of several (or a large number) compositional versions based on a minimum nomenclature of typical elements with combinatorial and variable properties. In design practice, the principle of a “variable element” is used, for example, in designing mobile exhibition structures, advertising equipment, furniture, parquetry, children’s toys, etc. In this case, as a rule, the object of design is primarily the variable type element itself (or a nomenclature of type elements), which usually constitutes a constructive link (part) of a composition or structure. It can be a universal node, rod, panel, or block. In many cases, simple geometric shapes are used as variable elements.

If the combinatorial conditions are strictly formulated, multivariate problems can have a finite number of solutions. They can be solved using methods of exact analysis. Therefore, geometric knowledge is fundamental to this type of design practice. In particular, the role of knowledge about shapes and polyhedra, systemic planar and spatial structures, their morphology, combinatorial and symmetric properties, and methods of shaping is essential. In the 1960s and 1970s, the first manifestations of a new geometrised imagery of architecture, the use of modern industrial structures and progressive building materials were realised. Examples include the Palace of Sports in Kyiv (M. Hrechyna, O. Zavarov); Khreshchatyk (A. Dobrovolskyi, V. Yelizarov, etc.); University (G. Holovko, M. Syrykin, etc.); and Holovko, M. Syrykin, etc.); Tarasova Hora Hotel in Kaniv (N. Chmutina, E. Husieva, V. Shtolko, etc.); Palace of Children and Youth in Kyiv (A. Miletskyi, E. Bilskyi), etc.

The task of “modularised structure (system)” has become widespread in the creative practice of design and architecture. The modularity of a structure is interpreted as a property that indicates the presence of repeating elements in its construction — modules of geometric, structural or functional types. The shape of the modules can be determined based on the compositional requirements. However, in most cases, modular elements satisfy at the same time both technical and artistic and compositional requirements. The idea of modularity is widely used in furniture design, standardised structures for engineering, architectural and artistic and design applications.

Examples of modularised systems include R Fuller’s dome constructions, and spatial core systems such as “structural plates” that are created on the basis of regular geometric systems (Fuller & Applewhite, 1997). The modularity principle is also applicable to flat, spherical, hyperbolic and other types of surfaces. R. Fuller’s method not only opened up fundamentally new possibilities for engineering and technical solutions for dome systems but also ensured the achievement of unusual aesthetic effects in the architecture of dome structures. R. Fuller’s idea destroyed the stereotype of the classical radial-ring (axisymmetric) dome scheme, and most importantly, the stereotype of spatial thinking, which was constrained by the idea of the superiority of the vertical direction in the “ground space” where gravity acts. The geometric problem posed by Fuller was extended to other types of surfaces. As a result, the designs of hyperboloids, hyperbolic paraboloids, and others were developed, i.e., the limits of the search for combinatorial geometric ideas were set as wide as possible.

A separate thematic variety is the practice of kinetic form-making. The general goal of these tasks is to create forms that possess the property of kinetics (transformability), ensuring their spatial variability. Thanks to kineticism, transport compactness, multifunctionality, compositional variability of forms, their packaging efficiency, installation and dismantling, etc. are achieved.

In practice, we can distinguish between two types of kinetic systems: rod and leaf-fold ones. In rod systems, the variability is provided using hinges installed in the nodes, which can be planar and spatial. Rod spatial systems are widely used in combination with awning structures and cables. Famous examples are regular rain umbrellas or sun umbrellas for beaches, street trade, and summer pavilions. The experience of designing transformable rod-and-screw systems by designer F. Escrig (2013) is illustrative. In his developments, we find experimental designs of self-erecting structures for rapid installation and assembly in extreme conditions. The constructions, based

on the use of combined rod-and-shaft and rod-and-tent systems, deploy from a compact transport state to a functional one spontaneously, under the influence of their weight.

It is interesting to note that the kinetic constructive systems were studied by Leonardo da Vinci (Zöllner, 2017). As a typical example of a unique kinetic design, it is worth mentioning the combinatorial geometric game Rubik’s Cube, which was widespread in the 1980s. The popularity of this game in the 1980s was enormous, and it aroused the interest of people of various ages, professional, and social categories. In this regard, it is fair to say that at that time a certain intellectual mood and certain figurative patterns dominated the consciousness of the social masses and that the Rubik’s Cube was a kind of indicator of them. Undoubtedly, this consciousness was directly influenced by the aesthetics of the surrounding object-spatial environment, characterised by simplified structure, “bare geometries,” regularity, etc., which, in turn, were the result of simplified technological methods and principles of its formation.

Pointing once again to the technology factor as the causal basis for the geometry used in form-making, let us pay attention to another very noteworthy area of creative practice in design and architecture that was based on geometry. We are talking about experimental design, which became the most widespread in 1970-1980. After a long period of industrialisation, especially in the building industry, the “epidemic of monotony” began to manifest with particular acuteness, affecting almost all new buildings in the country’s cities. The complete dominance of orthogonal, cubic structures in the mass housing architecture led to a sharp artistic impoverishment, which led to the search for an alternative.

This was possible, at least at the level of experimentation. Many architects and designers responded to the problem with design proposals. In the 1980s, a huge number of experimental projects were published in the press, all of which shared the common idea of replacing the “geometric frame” of architecture: rectangular with nonrectangular. The object of the experiment was mainly residential architecture, which suffered the most from industrialisation. Thus, the experimental design was a specific form of methodological research, during which the task was to find out the possibilities of adapting nonrectangular geometric shapes and structures in architecture, in particular, to test them for architectural and planning (functional) suitability, volumetric-compositional and artistic qualities, constructive and technological capabilities, etc.

Special attention was paid to the issue of design variants. How to reach a diversity of compositional and architectural planning solutions based on a limited set of typical elements? In this regard, the possibilities of using structures in different spatial orientations are being explored. This approach proves to be effective for almost all types of structures. Certain types of structures, such as the cuboctahedral structure, have been tested for the possibility of their application to objects of various functional purposes.

The development of bionics in experimental creativity and research in the 1960s-1980s. One of the authoritarian areas of experimental creativity and research in the 1960s-1980s developed in the context of the theme of natural form formation. In many ways, this trend continued the long-standing tradition of studying nature in art and architecture. However, unlike the problems posed by the classics of proportion theory, which were mostly limited to the study of aesthetic and harmonious features of biological objects, the theorists' research of the 1960s-1980s was aimed at identifying not only formal but also constructive, structural, morphological, and functional patterns of natural forming.

The practice of design and architecture of the time, which developed under the dominance of industrial technology, necessitated finding out how nature solves the problem of "standard and diversity," how the principles of constructive rationality, economy, manufacturability, and so on are realised in the processes of biological formation. Such questions stimulated the development of a new branch of natural science, bionics, which studies the laws of natural forming to use in artistic, architectural, design, engineering, and technical creativity.

Researchers have come across many features that resonate with the characteristic patterns of the structure of industrially produced architectural and object forms. These are structural regularity, similarity, combinatoriality, etc. As many examples demonstrate, nature perfectly uses the principles of unification and variation, modular structuring and compact packaging, implementing them in various planar and spatial forms, from the structures of biomolecules and cellular tissues to the forms of organisms as a whole or their parts. Plant tissue structures are characterised by patterns similar to hyperbolic surface partitioning systems, which are also widely used in the design. One of the most common patterns in living nature that has analogues in creative practice is the symmetry of similarity. It is widespread primarily in the forms of the plant world. In particular, it is realised in the branching of trees, the structure of leaves, the rhythmic construction of plant stems, etc. The scientist J. Hambidge considered the

logarithmic spiral as a form that expressed the idea of uniform (rhythmically repeating) growth in living nature (Hambidge, 1967). Another technological principle is inherent in snail shells. The shell growth occurs on the periphery and is governed by the law of the stable marginal angle. Other technologies of nature generate a spiral: the principle of the spiral is realised in various material environments — air, water, and space. In these cases, the formation mechanisms are based on purely physical laws.

The widest range of regular structures is realised in inanimate nature. First of all, we are talking about minerals in the structure of which the full range of 230 symmetry groups possible in Euclidean space is reproduced. Moreover, these reproductions are geometrically perfect. Absolutely precise models of crystallographic structures are often used in the design of rod-lattice structures such as "structural plates".

Thus, numerous studies of the morphological, constructive, aesthetic, and proportional properties of natural forms developed in bionics cover a significant part of the formative arsenal of wildlife, which has much in common with the formative palette of architecture and design. The knowledge gained opens up new possibilities for enriching the practical means of forming. Satisfying a purely pragmatic goal, the theory of bionics is intensively developing in theoretical, methodological, and practical aspects.

Conclusions

Having analysed the creative experiments in the field of design and architecture of the 1960s–1980s such as the rethinking of geometric spatial representations and spatial concepts in design theory and practice, the use of geometry in the formative practice of design and architecture, the development of kinetic forming practices, the spread of experimental design, and the development of bionics in experimental creativity and research of the 1960s–1980s, it can be noted that the entire diverse search movement that took place in the creative environment of Soviet society, despite its various directions, was quite interconnected. Special exhibitions, seminars, and conferences devoted to the issues of form-making were organised in research, architectural, and design institutions, allowing for the demonstration of the results of innovative research and providing a comprehensive understanding of their level. It should also be noted that the creative and conceptual level of these results was quite on par with the world's achievements in similar fields. However, the Soviet "experimental research laboratory" (unlike Western laboratories)

was too detached from real life. This was likely due to the overall limited technical capabilities for implementing creative ideas in the USSR. Soviet researchers and experimenters did not aim for direct realistic embodiment or even experimental practical testing of creative ideas. They focused more on developing formal (functional, constructive, technological) principles, “semi-finished products,” and ideas of objects rather than fully realised objects or their projects. There was a deliberate attempt to detach themselves from the existing level by abandoning all the factors of form creation that determine that level.

In a relatively short period of active cross-cutting research, it was shown that the technology of form-making and the associated formal and aesthetic language of architecture and design have inexhaustible reserves of external enrichment. This was one of the main consequences of the Soviet “experimental research laboratory”, which confirmed the need for implementing a certain function under constraints characteristic of the “live” process of forming the subject-spatial environment.

The fate of the Soviet school of experimental form-making and scientific and methodological research of the 1970s and 1980s is in many ways similar to that of the Soviet artistic avant-garde of the 1920s and 1930s. They are similar primarily in their conceptual orientation to the formal, artistic, and social issues, as well as in their role of destabilising traditional stereotypes and attempting to pave new paths of creative development. At the same time, the fate of these phenomena is also similar in the absence of direct ways of life adaptation. The “creative products” of the “experimental research laboratory” as a whole remained without social demand and were not requested by real practice. However, the significant gap with which it surpassed the general course of form-making processes created a reserve lifespan for these ideas in the future. From their level, these ideas will continue to gradually settle and bear fruit on the ground of real architectural and design practice for a long time to come.

The scientific novelty lies in the identification of historical patterns in the creative process of architecture and design of the second half of the twentieth century, in the outline of experimental design trends of this period, and in establishing their connection with global contemporary trends in artistic and design activities.

The article does not exhaust all aspects of the history of design in the second half of the twentieth century; *further research* will highlight the transformation of the creative trends in design in the last decade marked by Ukraine’s independence.

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Експериментальні напрями в дизайні архітектурного середовища в Україні другої пол. ХХ століття

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Мета статті — проаналізувати експериментальні напрями й теоретичні концепції в дизайні архітектурного середовища другої пол. ХХ ст., які відображали зміни в політичній, соціальній та культурній сферах. *Результати дослідження.* У дослідженні проаналізовано експериментальні напрями в дизайні архітектурного середовища, які виникли в другій пол. ХХ століття в Україні. Зазначено, що деякі з цих напрямів відображалися в проектуванні нових будівель, міст, архітектурних комплексів. З'ясовано значення експерименту та форми його реалізації в архітектурі та дизайні зазначеного періоду. Закцентовано увагу на таких експериментальних напрямках, як переосмислення геометричних просторових уявлень та просторової концепції в теорії й практиці дизайну; застосування геометрії у формотворчій практиці дизайну та архітектури; розвиток практики кінетичного формотворення; поширення експериментального проектування; розвиток напрямку біоніки в експериментальній творчості та дослідженнях 1960–1980-х рр. Було обґрунтовано, що процеси розвитку архітектури та дизайну в Україні протягом другої пол. ХХ століття відбувалися в тісному зв'язку зі світовими тенденціями цих часів. Проведено порівняння з проектною творчістю відомих зарубіжних дизайнерів, таких як Річард Фуллер, Едуардо Пінєро та Доналд Хембідж. *Наукова новизна* дослідження полягає у виявленні історичних закономірностей розвитку архітектури й дизайну другої пол. ХХ століття, у висвітленні експериментальних напрямів дизайну того періоду та їхнього зв'язку зі світовими тенденціями розвитку художньо-проектної діяльності. *Висновки.* Аналіз розвитку дизайну архітектурного середовища в Україні другої пол. ХХ століття здійснюється в цьому дослідженні через призму поняття «експеримент». Експеримент завжди був та є невід'ємним аспектом людської діяльності в усіх її різновидах. Виявлено, що за умов, коли творчий процес не зазнає якихось сторонніх впливів, зокрема ідейно-політичних, експеримент є органічним складником архітектурно-дизайнерської системи формоутворення. Обґрунтовано, що багатоманітний пошуковий рух, що здійснювався у творчому середовищі радянської доби, був взаємозв'язаним. Творчі та концептуальні досягнення цих експериментальних пошуків були на рівні світових досягнень у подібних напрямках. Однак «експериментально-пошукова лабораторія» радянського періоду була надто відірвана від реального життя, орієнтувалася на формальні засади, ідеї та принципи речей, замість конкретних предметів чи їх проєктів у завершеному вигляді. Дослідження також показало, що технологія формотворчості та формально-естетична мова архітектури та дизайну мають невичерпні резерви зовнішнього збагачення. Активні стикові пошуки, які тривали протягом відносно короткого періоду, показали цей потенціал. Одним із основних наслідків діяльності радянської «експериментально-пошукової лабораторії» була підтверджена потреба реалізації певних функцій умовами обмежень, що характеризували «живий» процес формоутворення предметно-просторового середовища. Виявлено, що експериментальні напрями в дизайні архітектурного середовища в Україні другої пол. ХХ століття відображали широкий спектр змін у суспільстві, культурі та політиці. Вони впливали на розвиток архітектурного середовища, створюючи нові інноваційні підходи до проектування та будівництва, а також відображали національну ідентичність та культурну спадщину українців.

Ключові слова: дизайн архітектурного середовища; практики дизайну; історія дизайну; експеримент; експериментальне проектування; концепція простору; геометрія; формотворення; біоніка; радянський період

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