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ORIGINAL ARTICLE

Environmental design as a modern cultural trend

V.D. Severyn[1], N.V. Severin[2], M.K. Chebotarev[2], M.I. Adamenko[3], V.O. Shvedun[4], S.V. Stankevych[5*], S.I. Sysoieva[5], T.V. Antonenko[6], M.V. Matsyura[6]

[1]Kharkiv State Academy of Design and Arts, 8 Arts St, Kharkiv, 61000, Ukraine
[2]National Technical University "Kharkiv Polytechnic Institute", 2 Kirpichova St, Kharkiv, 61089, Ukraine
[3]Uman national university of horticulture, 1 Institutskaja St,Uman, 20305, Ukraine
[4]National Aerospace University M. E. Zhukovsky "Kharkiv Aviation Institute", 17 Chkalov St, Kharkiv, 61070, Ukraine
[5]V.V. Dokuchaev Kharkiv National Agrarian University, v. Dokuchaevske, Kharkiv region, 62483, Ukraine
[6]Altai State University, Barnaul, Russian Federation
**Corresponding author E-mail: sergejstankevich1986@gmail.com*
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The authors note that environmental design should solve philosophical, ethical and psychological problems, motivate for harmonious coexistence with nature and form an environmental culture. It is highlighted tat environmental culture is considered as the axiological basis of design, the basis of professional ethics, the paradigm of thinking, the determinant of activity, a component of professional education that focuses on the formation of an active position in solving of the problems of rational use of natural resources. It is emphasized that the formation of environmental competence and the study of the basics of environmental design in the education system makes it possible for future specialists to form value ideas about interaction of the environment and humanity. The main components of formation of the environmental competence of the future designer are the following: psychological and pedagogical training, technological preparation, purposeful organization, planning and support of the process of formation of environmental competence.

Keywords: Environmental design, environmental culture, environmental competence, environmental problems.

Introduction

Scientific and technological progress and the development of information technologies raised humanity in the second half of the 20th century to a higher stage of the "information" society. The economies of developed countries have become based on knowledge-intensive and information technologies, with increasing emphasis on resource-saving technologies. However, in addition to social, economic and political problems, negative phenomena have become: the invention of non-decomposable and non-recyclable materials, mountains of garbage that mass consumption society leaves behind. Humanity has disrupted natural processes, the mechanisms of the natural environment, where there is a cycle of substances and for each substance there are other substances and organisms that process them.

Environmental problems have become apparent and are being addressed through both legal and administrative measures against pollution and research into new non-natural materials and technologies, processing and reuse capabilities and technologies. In general, a reappraisal of values took place in a post-industrial society, the main goal of its development was not economic growth, but the solution of social and humanitarian problems. Later, anthropocentrism, the humanization of the man-made world began to be replaced by an ecocentric approach to interaction with the environment. In the system of human relations with nature, man becomes its organic part.

Design, which is always focused on solving problems, which is a part of its entity, is actively involved in solving of environmental problems. The directions of anti-design, radical design, art design, green and sustainable design, environmental design arise as a reaction to technocratic functionalism and commercial styling. Designers began to strive to design things not of mass demand, or not prestigious, fashionable and expensive, but "close" to people, semantically filled, of cultural value, compensating for the shortage natural environment in man-made object-spatial environment, that harmonize relations between society and nature.

Thus, speaking of the environmental direction in modern design, it can be considered as a way of solving problems, covering all material areas of human activity. Design responds to the private and global challenges facing a person, but only if there is a problem does a project search begin for ways to solve it. Environmental issues are clear and comprehensive, and therefore a systematic "project" approach to solving environmental problems is needed.

Methods

To reveal the phenomenon and analyze environmental design, it is necessary to use a set of the following methods and approaches:

- Cultural approach for considering research problems, involving humanitarian problems and analysis of design activities as a logical product of cultural development, innovative in nature, which allows considering the phenomenon in the complex and context of social and cultural significance;
- Phenomenological approach when considering ecological design as a cultural phenomenon in terms of cultural and axiological grounds, social and formal manifestations;
- Systemic approach that allows the analysis of design as a system, its individual components and the nature of their relationship to each other and to other cultural phenomena; morphological method; structural-functional analysis; diachronic and synchronic methods; typological method;
- Dialectical method, methods of artical and historical analysis, historical and genetic analysis, semiotic method in tracing the emergence and evolution of the ecological approach in design and artistic creativity throughout the history of mankind and human culture;
- Methods of abstraction, analogy, generalization, analysis and synthesis, when compiling a holistic picture of the development of environmental design.

To consider environmental design as a holistic phenomenon of modern culture, it is relevant to turn to methods of cultural analysis, which include humanitarian problematization of research materials, comparing the phenomenon of environmental design with other areas of project practice in historical retrospect, identifying its structure, relations and connections of components within the phenomenon and with other spheres of being, highlighting conceptual characteristics and internal contradictions of environmental design, analyzing trends and patterns of its development. Systematization and synthesis of knowledge about project practices with environmental issues, about ecological culture and problems of its formation, available in various humanities and natural sciences, design and artistic activities also raises the need for a cultural approach to research. This makes it possible to trace the evolution of design principles, due to many social and cultural factors, to describe not only processes at various stages of the design and functioning of objects, but also to present environmental design as a system, to build its integrative model, which is relevant for design theory and cultural studies.

Results

Design is an integral part of the manufacturing process. Designers can consider the extent to which design products may adversely affect the natural environment at all stages of their life cycle: design, manufacture, use and disposal. It is necessary to take into account the priority problem when studying environmental design. This is a problem of rationality-in the first place already at the design stage, when the designer must take into account the optimal ratio of the costs of materials, the life expectancy of the product and the possibility of its subsequent disposal. He should predict, take into account and prevent possible environmental damage both during manufacture and operation and disposal (passive destruction, its duration and released substances; destruction or reprocessing, energy consumption and harmful effects on nature; possible second life of the object).

At each stage of existence of the object, the process of interaction with the environment is observed: materials, energy, meanings (including design, when the result is predicted and laid) (Gordon, David, 1990; Ahern, Cilliers & Niemela, 2014). This cannot be taken into account due to the globality and mass nature of introduction of design into everyday life.

The huge number and shortness of many design objects, the use of artificial materials that are difficult to dispose of, the excess of production of real needs, the influence of design on the lifestyle and worldview led to a rethinking of the role of design in society. If in architecture styles exist for centuries, then in fashion design only the season is relevant. The rapid change of styles and forms is a consequence of the basis of material production - the market mechanism of production, distribution and consumption. And design also appears as a market mechanism of functioning, occupying a certain place in the system of culture, production and consumption.

Environmental aspects appear in almost all areas of project activity. For example, in architecture, when it comes to materials, adapting the building to the natural landscape, creating the most comfortable environment for man. In industrial design, when considering programs for production of products from secondary raw materials or minimizing energy costs, etc. Architects and designers should take into account the results of research on human ecology and applied ecology (communal ecology, settlement ecology, city ecology). Ergonomic requirements and regulatory documents in construction and architecture regulate almost all physical and chemical parameters of the interior (Alberti & Marzluff, 2004; Borysova et al., 2021).

At the same time, it is necessary to take into account the following characteristics of the interior as a habitat:

- Microclimate (air state), which is characterized by the following parameters: air temperature, relative air humidity and air velocity;
- Illumination (natural and artificial): characterized by the level of illumination, the distribution of illumination, the absence of highlights, the direction of light, the distribution of shadow, the color of light, color transmission;
- Atmospheric pressure (increased, normal, reduced): depends on the pressure in the working room, height above sea level, barometric pressure;
- Presence of harmful substances (vapors, gases, aerosols), characterized by concentration of components in air;
- Presence of mechanical oscillations (vibration, noise, ultrasound), which are characterized by frequency, amplitude, oscillating speed, octave band frequency, sound pressure level;
- Radiation (electromagnetic, infrared, ultraviolet, ionizing, radio frequency, radiation), characterized by wavelength, intensity of radiation, frequency of oscillations, rate of radioactive decay;
- Presence of biological agents: microorganisms (bacteria, viruses, fungi, etc.), macroorganisms (plants, animals), which are analyzed by the degree of their dangerous effects on the human body (Li et al., 2005; Ata, Deniz & Berrin, 2012; Batyr et al., 2021).

It is also necessary to take into account the functions of human interaction with the environment from the point of view of ecological psychology as follows:

- Psychophysiological one (stress relief, normalization of the nervous system);
- Psychotherapeutic one (harmonization of interpersonal relations);
- Rehabilitation one (psychological and social rehabilitation);
- Aesthetic one (satisfaction of aesthetic needs and personal development);
- Cognitive one (satisfaction of cognitive needs, promotion of intellectual development);
- Self-realization (the highest human need);
- Communication;
- Implementation of cognitive activity (satisfaction of competence) (Ahern, Cilliers & Niemela, 2014; Hren et al., 2021).

Sustainable development includes, in addition to environmental, economic and social, many other aspects: political, legal, international, information, technological, educational ones. The harmonization of these different viewpoints and their translation into the language of specific activities that are means of achieving of sustainable development is a challenge, as all three elements of sustainable development must be considered in a balanced manner.

Sustainable development, in fact, is dualistic in nature, which surprisingly echoes our assessment of design processes. Meeting of human needs defines the anthropocentrism of the goal, and the means of achieving this goal, taking into account the requirements of the concept of sustainable development, should be ecocentric.

This illustrates the two-factor determination of culture as a whole. On the one hand, it preserves material and spiritual values, on the other hand - the environment and natural resources based on universal human values. The dualism of sustainable development as a process that sets the characteristics of all its components.

Thus, the activities of the designer are always environmental in nature. Design objects produced in a massive number, growing exponentially, fill the space, and, not having time to develop their resource, are replaced by new ones. Humanity has become the main garbage producer, it created materials that are not included in the natural circulation of substances. The burden on the environment caused by human activities has become a determinant of its evolution and is growing so rapidly that the balance of the biosphere is no longer to be said (Fich et al., 2014; Batyr et al., 2021).

The fleeting and cult of consumption, the recklessness of emotional purchases, the desire for constant renewal formed by the influence of the media, cause demand for disposable things: dishes, containers, towels, paper clothes and cardboard furniture. In 1970, even a whole exhibition called "Here and Now" was held in London, where items for short-term use were presented. Now you will not surprise anyone with this, there is more than one packaging museum. And a modern design, the objects of which are designed for once or for the season - this is actually the design of garbage. There was even such a direction in art design and modern art as the design of garbage.

The subject environment in culture is becoming more and more short-lived, fashion determines the need for continuous replacement of some items with others. Advertising helps to maintain stable demand and contributes to obsolescence of things, short-term use of the product. The informational impact with the help of a huge number of its carriers makes people to feel dissatisfied and even flawed, look for new forms, images. Design, which should bring harmony and order to the lives of people, becomes a factor and mean of creating of an imbalance in the processes of production and consumption, disharmony of consumer psychology, unjustified discrepancy between the actual and market value of the product (Alberti & Marzluff, 2004; Iyendo, Uwajeh & Ikenna, 2016).

A huge stream of thoughtful visual and audio information, signals, images, promotions, continuous renewal of the subject world and crowding out the old with the new fall on a person and cause diseases of consumer dependence. Modern culture is characterized by a rapid change and obsolescence of information and the subject world, which is artificially spurred by the professional techniques of an entire army of psychologists, marketers, merchandisers, journalists, designers and other specialists.

The environmental approach in design forms a new consumption culture, a demand structure based on reducing excess products; environmental literacy; purposefully changes the values of people through artistic images of design objects in accordance with the principles of ecocentric attitude to nature; promotes the dissemination of ideas of ecological design, the formation of an ecological culture of society. Environmental culture is considered as the axiological basis of design, the basis of professional ethics, the paradigm of thinking, the determinant of activity, a component of professional education that focuses on the formation of an active position in solving the problems of rational use of natural resources in future professional activities, as an inherent, supraprofessional and interprofessional quality that ensures the readiness and motivation of designers to translate environmental culture into society (Batyr et al., 2021; Borysova et al., 2021).

In the integrative cultural model of environmental design, the following three leading components are identified:

- Content component that includes: worldview, axiological, philosophical and ethical, ontological, semantic, historical and genetic, motivational targeted, psychological, sociological, economic and methodological components;
- Technological component that includes: production, natural science, scientific and technical, normative, educational, effective components;
- Aesthetic component that includes: formal, style and artistic components (Li et al.,2005; Ahern, Cilliers & Niemela, 2014)

The formation of environmental competence and the study of the basics of environmental design in the education system makes it possible for future specialists to form value ideas about interaction of the environment and a person, as well as to familiarize themselves with the principles and techniques of greening, which should be used in the design objects, which can guarantee the creation of nature-like projects.

Thus, conscious change of priorities in the scale of cultural values, design principles, and, as a result, the principles of industrial production, engineering thinking, the formation of a responsible attitude to nature, environmental culture by means and methods of design can help humanity in solving environmental issues. The environmental paradigm (as a set of values, methods, approaches, technical solutions and means) should become a leader in design, which forms the subject-spatial environment.

Environmental competence is closely related to the concept of "ecological culture," which includes ecohumanitary values, subject-subject and subject-object relations in the human system-society-nature, a holistic worldview and the world relationship of man. Environmental culture is always a measure of human freedom in relation to nature. In this regard, the environmental competence of the designer can be represented as the ability and readiness to implement environmental values and guidelines in professional activities, to design a holistic object-spatial environment.

The main components of formation of the environmental competence of the future designer and professional teacher in the field of design, that should ensure the effectiveness of the process, are the following:

- Psychological and pedagogical training, which forms an environmental culture and responsibility in design and professional communication;
- Technological preparation, including knowledge of design technologies, thinking, knowledge of technologies and stages of production processes;
- Purposeful organization, planning and support of the process of formation of environmental competence (Fich et al., 2014; Smith et al., 2015).

Environmental competence is characterized by attitude to living and non-living nature, possession of legal and moral norms of environmental behavior, attitude to issues of saving resources and waste (at the household level), the level of knowledge about nature protection, understanding the advisability of green design, the degree of environmental impact of production technologies and design objects, subject-spatial environment, moral position in environmental issues, experience and motivation for environmentally sound activities and translation of environmental culture into society by design tools.

Thus, the formation of environmental competence and the study of the basics of environmental design will make it possible to form value ideas about the interaction of the environment and man, as well as to familiarize themselves with the principles and techniques of greening, which should be used when designing of objects, that can be a guarantee of creating of nature-like projects and promotion of environmental culture in society by design tools.

Conclusion

Thus, the theoretical foundations of environmental design continue to form. Over the past decades, the global process of greening the project culture has gone from humanitarian criticism of the negative consequences of the dominance of consumer and technocratic installations to the formation of environmental movements and organizations, the development of principles for harmonizing interaction and coexistence with the natural environment, the emergence in architecture and design of design proposals, concepts and implemented objects in which environmental feasibility issues are resolved.

Environmental design is a direction and paradigm of design, the purpose of which is to harmonize relations between society and the environment (natural and anthropogenic), to form a worldview, environmental culture, consumer and aesthetic requirements of a person in accordance with the capabilities of nature, to ensure its preservation and minimization of harmful effects at all stages of life of a design object: production, operation and disposal. Along with the aesthetics, functionality, ergonomics and economy of the facility, the following requirements must be met: saving resources (materials, including irreparable, and energy), lack of harm to human health and the natural environment during production and operation, durability of the product, simplicity and safety of its disposal, the possibility of reuse or recycling (Gordon, David, 1990; Suresh, M., Dianne, S. & Jill, F, 2006).

Environmental design should solve philosophical, ethical and psychological problems, motivate for harmonious coexistence with nature and form an environmental culture. The subject of environmental design is the creation of a harmonious, meaningful and aesthetic object-spatial environment (artificial and natural-anthropogenic), which expresses the value and significance of the harmony between man and nature, consumer and axiological aspects of the design object. Interdisciplinary character, complexity and integrativity are distinctive features of the environmental direction in design.

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