

T.K. Samuratova
J. Ermalat

L.N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan
(E-mail: samyratovatk@mail.ru jhanaris.ermalat.92@list.ru)

New approaches in the development of ecodesign

Abstract. *The article is about the issues of safety and environmental design, the use of safe products. The need for renewable plastic resources, energy conservation, renewal and the use of recycled plastics is touched upon. Ecodesign can also be used to comply with technical requirements and certain rules.*

The direct connection of ecodesign with philosophy and ecology is considered. That is, through a philosophical approach, humanity realizes its connection with nature and contributes to the development of ecological culture.

Ecodesign is a design and architecture trend that aims to protect the environment in a way that is comfortable, convenient and harmonious for humans. It describes not only beautiful and comfortable materials, but also those used in the design, creation, application and operation. Thus, ecodesign connects the place where a person is with nature and gives an inner picture of human creation, optimally harmonized with the environment. A person feels good in an «ecological» room and turns to the correct composition of eco-design or natural materials and colors of a natural character.

Keywords: *Ecodesign, new approaches, design, creation, application, editing.*

DOI: <https://doi.org/10.32523/2616-6895-2022-138-1-575-582>

Introduction

Ecodesign technologies vary from the types and methods of making decorative items of folk crafts of the Kazakh people since ancient times, skillfully embroidered, woven, embroidered, printed, woven processing techniques, products made of silver, leather, wood, cotton, wool, flax, ceramics, clay, etc. . indicates that it is associated with a different environment. One of the modern trends in design is «eco-design», which contributes to the formation and perception of new environmentally friendly interactions in the «man-nature» system. The global environmental problem and the definition of the boundaries of the term «ecodesign» are raised. It is related

to the concepts of ecological design, ecological culture, ecological competence, biodesign.

The concept of cultural and ecological design, developed in the works of spirituality and cultural memory, is directly related to the ideas of O.G. Kurierova, K.A. Geisaretsky, V.F. Kondratyev. This is described in the works of Sidorenko.

The emergence of a new scientific direction, such as «ecological aesthetics», raises the question of the interaction of man and nature and finds its practical application in «ecological design» [1].

The link between ecodesign and philosophy and ecology is direct. Today we are considering issues related to the impact on environmental objects, various projects as design objects. In most cases, the names of the substances are

«ecological» in nature, based on their association with the word «eco». Today the concept of «ecological design» is perceived as an ecological phenomenon. All ecologically related areas are reflected.

Now let's turn directly to the definitions of the concept of «ecology» given in scientific works:

- human activity in nature (N.G. Vasiliev, M.S. Kogan, S.N. Kravchenko, A.I. Kochergin, Yu.G. Markov, etc.);

- as a way of regulating the moral and scientific means of the system of ecological relations, the transformation of negative thinking into positive (N.N. Kiselev, I.D. Laptev, K.I. Shilin);

- as the nature of social interaction not only with nature, N.D. Markarian);

- the process of preserving, modernizing and developing a set of social and natural values (A.F. Likhodievsky, E.N. Nikonorova, N.N. Khramenkova);

- specific ecological knowledge and faith of a person, readiness for service, as well as specific practical actions (I.T. Suravegina);

- Kogan L.N. as «a measure of the disclosure of the essential forces of man, manifested in his activity - a practical attitude to nature»; - as «harmony between nature and man» (G.V. Mukhin, M.T. Frolov, etc.) ;

- as «a measure and method of development and implementation of human social forces in the material-practical and spiritual-theoretical development of nature and ensuring its integrity» A.G. Maslyaev;

- Considered as «a generalized characteristic of a person, combining in-depth knowledge of the relationship between society and nature» (G.N. Lyubarsky, A.A. Merkurumova) [2].

These data show that environmental problems are closely related to nature, as well as to the preservation of social and natural values. Scientists who have conducted research in the field of art history in Kazakhstan have also contributed to the development of the art of design. It is necessary to create a project for the production of products that can meet market demand on a large scale. Design (this concept was used from the 3rd to the first half of the twentieth century) is a special process that prevents the production of the product itself and simulates

it in the form of marking (drawings, models, layouts, etc.).

When starting to develop any new product, the designer should always take into account the person who uses this product. With the deep thinking of the master, imagination, knowledge of technology and skill, the designer can always find something new and more progressive [3].

In our research work, when studying the development of ecodesign technologies, it is necessary to note the harmony of design and architecture with nature. This trend is called ecodesign. Within the framework of this concept, the plan includes the reduction of a large amount of food, as well as a radical rethinking of the material and technology, a new structure of needs. No one can deny the connection between a person's physical and mental health.

The emergence of ecodesign has found an answer to the environmental crisis in modern society. The main requirements of ecodesign for an architect and designer are: safe use of the product, no harm to health, noise, vibration, emissions, low radiation levels, prevention of environmental damage. Therefore, when developing ecodesign, the following steps must be taken into account. These include: the origin of materials, resource conservation in design, production, application and use, from environmental protection to the proper treatment of animals, to the protection of human rights. The development of ecological design and architecture is very important for each of us.

Ecodesign is a design and architecture trend that aims to protect the environment in a way that is comfortable, convenient and harmonious for humans. It describes not only beautiful and comfortable materials, but also those used in the design, creation, application and operation. Thus, ecodesign connects the place where a person is with nature and gives an inner picture of human creation, optimally harmonized with the environment. A person feels good in an «ecological» room and turns to the correct compilation of ecodesign or natural materials and colors of natural character [4].

From a scientific point of view, ecodesign begins with bionics and ergonomics. By modifying existing natural forms and defining

convenience criteria, the designer creates an environmentally friendly product in terms of materials and components used in production, taking into account not only the impact on the consumer, but also its suitability for recycling.

Sustainable design is a way of developing a product with an environmental impact in mind throughout the product's life cycle. Sim Van der Rijn and Stuart Cowen define it as «any type of design that reduces environmental impact by combining it with life processes». Sustainable design is a complex subject of sustainable design. Environmental design can also be seen as a design and development process that integrates environmental approaches to product design and development in order to reduce environmental impact [5].

The prefix «eco» has been used for ninety sciences, including eco-city, eco-management, eco-technology, eco-architecture. It was first used by John Button in 1998. In the early stages of development, environmental design was concerned with «incorporating» the environmental factor into the design process, but later he focused on the details of environmental design methods such as product systems. Either a single product or an industry as a whole. By integrating life cycle patterns through the flow of energy and materials, sustainable design is new. Industrial ecology is a conceptual tool for modeling models derived from natural ecosystems and a basis for formulating environmental and technical problems [6].

Literature review

From an artistic and design point of view, according to V.Yu. Medvedev, «Design is a creative method, process and result of artistic and technical design of industrial products, their complexes and systems, aimed at achieving the most complete correspondence of the created objects and environment with utilitarian and aesthetic capabilities and human needs in general» [7].

In addition, V. Pigulevsky recalls that the new design style was adopted without decor. The task of the proposed project is to evaluate the object

purposefully and objectively. Walter Gropius, founder of the school of functionalism, explains the main direction of design: «Art and technology - a new sequence».

Design (eng. Design - project, design, drawing, plan, drawing) is the direction of art and architecture, which includes the creation of the best industrial products and the coordination of the material environment.

The meaning of the word «design» is determined by its etymology. Translated from the native language, you can focus on the concepts of Italian and English. Design (from the English design — to design, draw, conceive, as well as a project, plan, drawing) — the activity of designing the aesthetic properties of industrial products («artistic design»), as well as the result of this activity (for example, in such phrases as «car design»)[1]. [8]. The Italian word «disegno» means projects, paintings, fundamental ideas of the Renaissance. In England, the word «design» was used to refer to design, drawing, invention. He also made it possible to describe the concept of design in this area in the works of Russian scientists. At the beginning of the XX century, one of the Russian scientists V. Y. Medvedev in his work showed the importance of forming a project culture [9]. The researcher reveals the design system in a clear definition of the concept of «design», emphasizes its capabilities and the need for human capital development.

Russian scientists who have studied the history of design have many works on the formation of design theory. B.T. Baeshev in his works for many centuries highly appreciated the mastery in the material space of a person, complementing the idea that things around him are the result of painstaking and long work of masters, proving that in the process of processing a masterpiece, things become reality. In the modern world, the development and study of the concept of «design» is often intertwined with the environment [10].

Domestic scientists who have studied the history of design have many works on the formation of design theory. In his works, B.T. Baeshev for many centuries highly appreciated the skill in the material space of a person, complementing the idea that things around him

are the result of painstaking and long work of masters, proving that in the process of processing a masterpiece, things become reality. In the modern world, the development and study of the concept of «design» is often intertwined with the environment [9].

There are many works devoted to the formation of design theory. Basically, in the definition of design, according to our observations, this term originates in European countries. The famous Professor Bauhaus, the founder of the Higher School of Artistic Design and Construction of German Scientists, invited his students to introduce a new style of design. In turn, famous artists and architects have contributed to the formation of the concept of design. For example, Paul Klee (1879-1940.), Pieter (Piet) Mondrian (1872-1944.), Vasily Kandinsky (1866-1944.), Lionel Feininger (Lyonel Feininger, 1871-1956.), Mies van der Rohe (Ludwig Mies van der Rohe, 1886-1969.), Hannes Meyer (Hannes Meyer, 1889-1954.), Marcel Breuer (1902-1981.), Walter Gropius (1883-1969.) supported the newly introduced structure [10].

Research methods

In this article, to explore the safety and health benefits of using eco-friendly products it is necessary to study the benefits of using environmental products for safety and health..

Sustainable design methods include products made from all sustainable materials. For example, you can use eco-design for interiors, landscapes, architecture.

The newest models of specialists with the help of eco-design technologies make it possible to provide effective methods and ways to increase the level, indicators of professional skills of specialists through knowledge of traditional and modern technologies, eco-design materials and a consistent system of their preparation. Eco-friendly design forms and textures from materials become simple and understandable, which allows you to give the buyer, things originality. This approach develops the imagination and inspires creative communication with the subject.

The most famous manufacturer working on this topic is IKEA.

A person can do some things on their own, which allows a modern person to abandon the use of something ready-made and connect to certain materials, for example, to their ancestors.

Thus, ecological design draws inspiration from nature and redefines the role of man in relation to it. A modern person, choosing practical and comfortable things made from local materials according to long-established technologies, gets the opportunity to reduce the damage caused by production to the environment. Of course, no one forces to give up smartphones and cars, but you can try to find a «green» alternative to many things that we use on a daily basis [11].

The study examined the approaches of ecodesign, eco-city, eco-management, eco-technology, eco-architecture, eco-interior.

Data analysis

For all the polls in the table presented, people answered differently. This method is a research method that involves collecting, analyzing, and integrating quantitative and qualitative research into a research or research program. The goal of this method is for research to be qualitative and quantitative research, not only in aggregate, but in a single research approach that provides a better understanding of the research problem.

For example, questionnaires, which are traditional sources of quantitative data, are ethnographic qualitative research. Storytelling, on the other hand, uses stories associated with qualitative research to quantitatively explore and analyze the history of events. These methods are used to compare the results of artificial and qualitative research. The reason for using combined methods may be insufficient quantity or quality indicators themselves.

This study used qualitative data such as interviews. Quantitative analysis, analysis for describing and comparing statistical variables. Based on research on the interpretation and generalization of qualitatively used quantitative results.

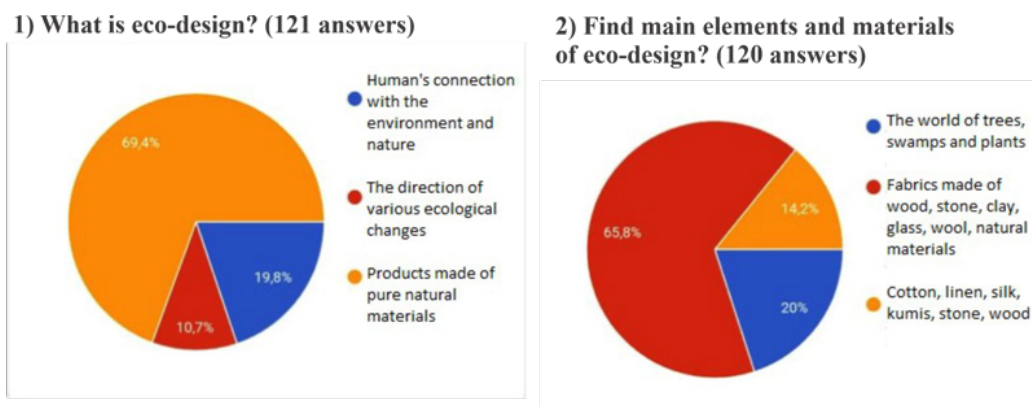


Figure 1. Question 1-2 result of the answer

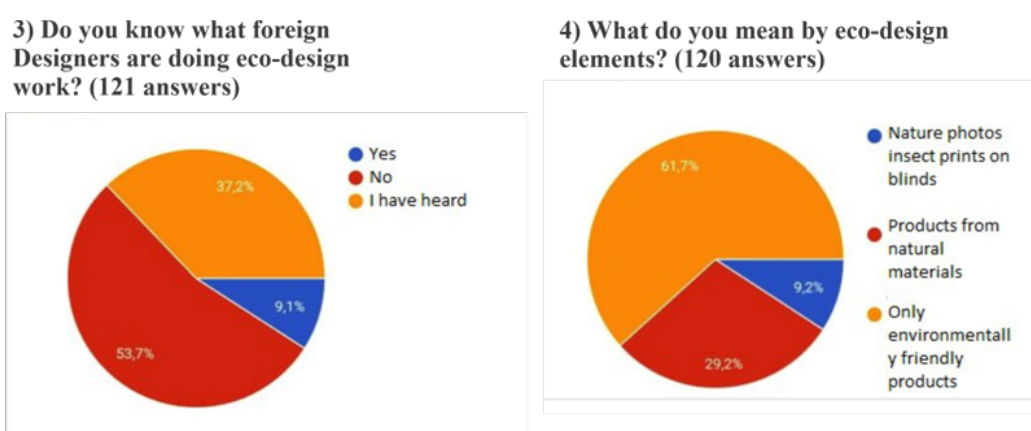


Figure 1. Question 3-4 result of the answer

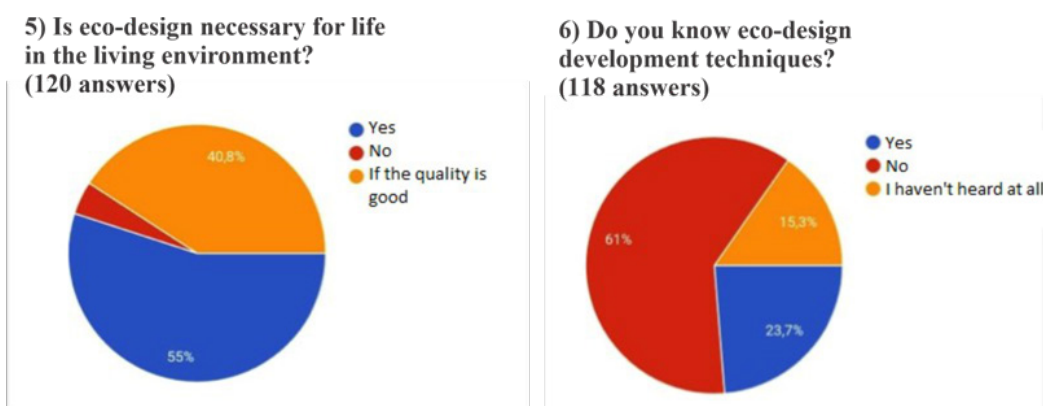


Figure 1. Question 5-6 result of the answer

In conclusion, when polled on this chart, it was found that many people chose a natural, harmless, environmentally friendly product. Despite the fact that eco-products are very relevant today, from 40 to 60% of people know what eco-products are, what they are made of,

how to develop and apply them in practice, and also use them in everyday life.

This means that in our country it is still necessary to develop an eco-product, eco-design, and further publish and justify them. That is, we must rid our habitat of harmful substances,

use only an eco-product, as well as recycle them again and develop a new harmless way. Only then will we have to recycle 97% of such garbage as the current country of Switzerland, and renew it again.

Conclusion

After all, eco-design technologies contribute to professional activity, professional knowledge, professional skill, the ability to work with various natural materials and techniques for performing techniques, the desire to learn and master the technologies and techniques of traditional art, the

sequence of forms of their production, processing and eco-design materials.

The essence and nature of the concepts Ecodesign, technology, vocational education, professional activity, professional skill are determined. In the theoretical substantiation, ecodesign applies various methods and techniques for determining the constructive, technological, plastic characteristics of materials, demonstrates the features of restoration by effectively eliminating defects, not only develops professional activities, professional activity, artistic thinking, but also improves skills and abilities.

References

1. Нурғалиев Р.Н., Акмамбетов Г.Г. Философский словарь.– Алматы, 1996. - 525 с.
2. Панкина М.В., Захарова С.В. Источники экологического дизайна // Материалы докладов Международной научно-практической конференции «Современные проблемы науки и образования». - Saarbrücken, 2014. — 225 с.
3. Психолого-педагогический словарь. 2 изд. - Алматы, 2011. -224 с.
4. Жиренов С.А., Альжанов Г.М. Педагогические основы экодизайна в современном национальном искусстве. // Вестник КазНПУ - 2021. - № 2 (86). -С.170-178.
5. Глазычев В.Л. О дизайне. Очерки теории и практики дизайна на Западе. – М., 1970. - 191 с.
6. Баешов Б.Т., Баешов Б.Б., Сейтпахиева А.Т. История и теория дизайна. - Тараз, 2014. - 111 с.
7. Медведев В.Ю. Роль дизайна в формировании культуры. - СПб, 2004. - 108 с.
8. Аронов В. Р. Дизайн в культуре XX века. 1945–1990 гг. - М., 2013.
9. 5 основных принципов эко-дизайна. – URL: <https://say-hi.me/design/5-osnovnyx-principov-eko-dizajna.html> (дата обращения: 15.12.2021).
10. Анн-Мари Уиллис. Дизайн культуры // Международная конференция по экологическому дизайну. – Москва, 1991. – С. 73-76.
11. Van der Ryn S., Cowan S. (1996). Environmental design. Island Press. 118 p.

References

1. Nurgaliev R.N., Akmambetov G.G. Filosofskij slovar' [Philosophical Dictionary] (Almaty, 1996, 525 p.).
2. M.V. Pankina, S.V. Zakharova Istochniki jekologicheskogo dizajna [Sources of ecological design], Materialy dokladov Mezhdunarodnoj nauchno-prakticheskoy konferencii «Sovremennye problemy nauki i obrazovaniya», [Materials of the reports of the International Scientific and Practical Conference «Modern problems of science and education»] (Saarbrücken, 2014, 225 p.).
3. Psihologo-pedagogicheskij slovar' [Psychological and pedagogical dictionary]. 2nd ed. (Almaty, 2011, 224 p.).
4. Zhirenov S.A., Alzhanov G.M. Pedagogicheskie osnovy jekodizajna v sovremennom nacional'nom iskusstve [Pedagogical foundations of ecodesign in contemporary national art], Vestnik KazNPU [Bulletin of KazNPU], 2 (86), 170-178 (2021).
5. Glazychev V.L. O dizajne. Ocherki teorii i praktiki dizajna na Zapade [About the design. Essays on the theory and practice of design in the West] (Moscow, 1970, 191 p.).

6. B.T. Bayeshov, B.B. Bayeshov, A.T. Seitpakchieva Istorija i teorija dizajna. [History and theory of design] (Taraz, 2014, 111 p.).
7. Medvedev V.Yu. Rol' dizajna v formirovanii kul'tury [The role of design in the formation of culture] (SPb, 2004, 108 p.).
8. Aronov V.R. Dizain v culture XX veka 1945-1990 gg. [Design in the culture of the twentieth century. 1945-1990] (Moscow, 2013).
9. 5 osnovnyh principov jeko-dizajna [5 basic principles of ecodesign]. Available at: <https://say-hi.me/design/5-osnovnyx-principov-eko-dizajna.html> (Accessed: 15.12.2021).
10. Anne-Marie Willis. Dizajn kul'tury [Culture design], Mezhdunarodnaja konferencija po jekologicheskomu dizajnu [International Conference on Environmental Design] (Moscow, 1991, 73-75 p.).
11. Van der Ryn S., Cowan S. Environmental design. (Island Press, 1996. 118 p.).

Т.К. Самуратова, Ж. Ермалат

Л.Н. Гумилев атындағы Еуразия ұлттық университеті, Нұр-Сұлтан, Қазақстан

Экодизайнды дамытудағы жаңа тәсілдер

Аңдатпа. Бұл мақалада өнімді пайдалану қауіпсіздігі, денсаулыққа зиян емес екенің және де эко-өнім екенін есте сақтау, қалдықтарды барынша азайту; салауатты орта құру; жаңартылмайтын ресурстарды тұтынуды азайту. Зерттеу барысында Эко-дизайн, өмірлік циклды бағалау, қоршаған ортаны, тұрақтылық, ластану, жаңартылу - инновациялық ойлауды қажет ететін проблемаларды зерттеу. Пластикалық ресурстарды, жаңартылатын көздерді, энергияны үнемдеуге, қоршаған ортаны ластауға және көміртегі шығарындыларын азайтуға, қайта өңдеуге, түпкілікті шығындарды оңтайландыруға, қайта өңделген пластикті жөндеу және пайдалану керек. Энергияны, ресурстарды және ластануды үнемдейді, бірақ сонымен бірге техникалық талаптарға және белгілі бір ережелерге сәйкес келу үшін пайдалану мүмкіндігі қарастырылады.

Экодизайнның философия мен экологиямен қатынасы тікелей байланысты. Зерттеп отырған тақырыбымыз экодизайн болғандықтан оның тікелей байланысы онсызда түсінікті, ал философиялық жағын айтатын болсақ, табиғат сұлулығын, оның айналасындағы құбылыстарды түсінудің өзі философиялық ой мен түсінікті қажет етеді. Яғни, философиялық көзқарас арқылы адамзат өзін табиғатпен етене байланысын түсініп, экологиялық мәдениеттің қалыптастыруға итермелейді.

Экодизайн - адамға жайлы, әрі ыңғайлы, әрі үйлесімді болатын қоршаған ортаны қорғауға баса назар аудартатын дизайнды және сәулеттегі ағым. Әдемі және ыңғайлылығы ғана емес, сонымен қатар жобалау, жасау, қолдану және пайдалану кезінде қолданылатын материалдардың сипаттамасы. Сонымен, экодизайн адам тұрған жерді табиғатпен байланыстырады және қоршаған ортамен оңтайлы үйлестірілген адам жаратылысындағы ішкі көріністі береді. Адам «экологиялық» жайда өзін жақсы сезініп, экодизайн немесе табиғат сипатындағы табиғи материалдар мен түсті дұрыс құрастыруға бет алады.

Кілт сөздері: эко-дизайн, жаңа тәсілдер, дизайн, құру, қолдану, өңдеу.

Т.К. Самуратова, Ж. Ермалат

Евразийский национальный университет им. Л.Н. Гумилева, Нур-Султан, Казахстан

Новые подходы в развитии эко-дизайна

Аннотация. В статье рассматриваются вопросы безопасности и экологического проектирования, использования безопасных продуктов. Существует потребность в возобновляемых пластиковых ресурсах, энергосбережении, обновлении и использовании переработанного пластика. Также его можно использовать, соблюдая технические требования и определенные правила.

Рассмотрена прямая связь экодизайна с философией и экологией. С помощью философского подхода человечество понимает свои отношения с природой и способствует развитию экологической культуры.

Эко-дизайн - это тенденция в дизайне и архитектуре, направленная на защиту окружающей среды, с тем, чтобы она была удобной и совместимой с людьми. Он нацелен не только на красоту и удобство, но и на безопасные материалы, использованные при проектировании и производстве. Таким образом, эко-дизайн соединяет среду обитания человека с природой и дает внутренний взгляд на природу человека, оптимально гармонизированный с окружающей средой. Человек хорошо себя чувствует в «экологическом» помещении и стремится к правильному сочетанию природных материалов и цветов с эко-дизайном.

Ключевые слова: экодизайн, новые подходы, дизайн, создание, применение, обработка.

Information about authors:

Samuratova T.K. – Professor, Design and Engineering Graphics Department, L.N. Gumilyov Eurasian National University, Satpayev str., 2, Nur-Sultan, Kazakhstan.

Yermalat Zh. – **Corresponding author**, Master's student in the specialty «Design», L.N. Gumilyov Eurasian National University, Satpayev str., 2, Nur-Sultan, Kazakhstan.

Самуратова Т.К. – Л.Н. Гумилев атындағы Еуразия ұлттық университетінің «Дизайн және инженерлік графика» кафедрасының профессоры, Сәтпаев көш., 2, Нұр-Сұлтан, Қазақстан.

Ермалат Ж. – **корреспонденция үшін автор**, Л.Н.Гумилев атындағы Еуразия ұлттық университетінің «Дизайн» мамандығының магистранты, Сәтпаев көш., 2, Нұр-Сұлтан, Қазақстан.