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THE IMPLEMENTATION OF MOCK-UP MAKING AND SHAPING METHODS WITHIN ARTISTIC MODELLING CLASSES

The article considers the educational and methodological aspects of applying mock-up making and shaping methods in the process of teaching artistic modelling in higher education institutions. The significance of mock-up making as an important stage of students' project activity is substantiated, which ensures the visualisation and materialisation of creative ideas, and contributes to the development of spatial thinking, imagination, and professional competencies. Scientific approaches to the classification of mock-ups according to various criteria are analysed: according to the properties of design objects, design stages, scale, degree of volume, and manufacturing materials. The main functions of mock-up making in design are identified, in particular, project, research, corrective, heuristic, prognostic, artistic-ideological, presentational, and educational. Particular attention is paid to methods of three-dimensional spatial modelling of clothing, in particular, dummy making and sketch pinning on a mannequin, which provide conditions for experimental search for shapes and structural solutions. The potential of using textural shaping as a modern approach to textile design, combining the decorative and structural properties of the material in the creation of the three-dimensional structure of the product, is revealed. The main methods of shaping textures of textile surfaces are outlined: from a solid textile fabric (puffs, gathers, folds, darts), from sewn-on elements (ruffles, flounces, decorative folds), as well as from sewn elements that form semi-volumetric or volumetric structures.

The article also substantiates the feasibility of using paper plastic as an accessible and effective means of mock-up making in the educational process. It is pointed out that paper mock-ups, made both in reduced scale and in full size, enable students to experiment with shape, explore the patterns of shaping, and develop plastic thinking.

It is concluded that the integration of traditional and modern methods of mock-up making and textural shaping in the process of teaching artistic modelling is an effective means of developing students' creativity and forming their professional competencies.

Keywords: *teaching artistic modelling; mock-up making; shaping methods; textural shaping; paper plastic.*
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РЕАЛІЗАЦІЯ МЕТОДІВ МАКЕТУВАННЯ ТА ФОРМОУТВОРЕННЯ ПІД ЧАС ЗАНЯТЬ З ХУДОЖНЬОГО МОДЕЛЮВАННЯ

У статті розглянуто навчально-методичні аспекти застосування макетування та методів формоутворення у процесі навчання художнього моделювання в закладах вищої освіти. Обґрунтовано значення макетування як важливого етапу проєктної діяльності студентів, що забезпечує візуалізацію та матеріалізацію творчого задуму, сприяє розвитку просторового мислення, уяви та професійних компетентностей. Проаналізовано наукові підходи до класифікації макетів за різними ознаками: за властивостями об'єктів дизайну, етапами проєктування, масштабом,

ступенем об'ємності та матеріалами виготовлення. Визначено основні функції макетування у дизайн-проєктуванні, зокрема проєктну, дослідну, коригувальну, евристичну, прогностичну, художньо-ідеологічну, презентаційну та навчальну. Особливу увагу приділено методам об'ємно-просторового моделювання одягу, зокрема муляжуванню та ескізному наколюванню на манекені, які створюють умови для експериментального пошуку форм і конструктивних рішень. Розкрито можливості використання фактурного формоутворення як сучасного напряму текстильного дизайну, що поєднує декоративні та конструктивні властивості матеріалу у створенні об'ємно-просторової структури виробу. Окреслено основні способи формування фактур текстильних поверхонь: із суцільного текстильного полотна (буфи, зборки, складки, виточки), із нашивних елементів (рюші, волани, декоративні складки), а також зі зшивних елементів, що формують напівоб'ємні або об'ємні конструкції.

У статті також обґрунтовано доцільність використання папероластики як доступного та ефективного засобу макетування в освітньому процесі. Зазначено, що паперові макети, виконані як у зменшеному масштабі, так і в натуральну величину, дозволяють студентам експериментувати з формою, досліджувати закономірності формоутворення та розвивати пластичне мислення.

Зроблено висновок, що інтеграція традиційних і сучасних методів макетування та фактурного формоутворення у процесі навчання художнього моделювання є ефективним засобом розвитку креативності студентів та формування їхніх професійних компетентностей.

***Ключові слова**: навчання художнього моделювання; макетування; методи формоутворення; фактурне формоутворення; папероластика.*

The introduction to the problem. Artistic modelling classes at higher education institutions provide effective training for students in artistic and engineering design activities based on the professional activities of a designer. Therefore, lecturers must perfectly master the system of concepts and theoretical principles applied by designers, as well as the set of operations, sequential procedures and stages covered by artistic modelling methods. Design activities are primarily aimed at harmonising people with their surrounding environment. Project activity covers almost all areas of human life and requires designers to take into account a number of factors, such as the ergonomic suitability of a product for a specific person, the assessment of the correctness of the compositional and engineering solution, functional capacity, and the plasticity of the shape and material of the product. The key task during the implementation of the concept of shaping of a design object in a specific material is the mock-up of the product.

The interconnection between a given shape structure and the method of its production is a pressing issue in modern artistic modelling. Classical methods of shaping, based on constructive principles, remain the most widely used, but alongside them, methods that previously fulfilled decorative and ornamental functions are being applied more and more frequently. Today, a new approach in textile design, namely textural shaping, in which the texture of the fabric is not separated from the process of forming the three-dimensional structure of the product but becomes an active means of shaping, is gaining attention. The combination of textural shaping and mock-up making methods in the educational process significantly improves students' perception of three-dimensional product modelling methods.

The analysis of studies and publications. The studies of scientists M. Votinov, V. Danilenko, T. Kostenko, O. Lugovskyi, V. Mykhailenko, M. Yakovlev, P. Shpara and others are focused on substantiating the relevance of mock-up making in design and the theoretical and methodological foundation of mock-up making. The problems of interaction between textiles and clothing are addressed by K. Amaden-Crawford, K. Wolf, L. Haiduk, K. Gail, T. Gumenyuk, Y. Kaur, T. Kozlova and others. The authors emphasise the main fashion trends in clothing textiles, the development of high-tech textiles, as well as practical techniques for creating textures. The methods of textural shaping in textiles with the use of various textures in clothing are reviewed in the works of M. Kisil.

A systematic analysis of references revealed that scientists have presented different aspects of the methodological sequence for developing the shape of a product with a given structure. The problem of experimental searches for new plastic solutions for the shape of an object remains relevant.

The aim of the article is to summarise traditional and innovative methods of mock-up making and shaping and to describe their application in the process of teaching artistic modelling in higher education institutions.

The presentation of the research results. The process of embodiment of shape in material begins with the formation of the concept of shaping, which consists in substantiating specific three-dimensional, decorative-plastic and imaginative-stylistic choices. The next step is to apply anthropological information and compositional means of harmonisation, resulting in the creation of a shape as a construction (unfolding) or a three-dimensional spatial model as a preliminary representation of the future design development sample.

In design a mock-up is defined as a sample of the designed product, its material three-dimensional embodiment. In design methodology, mock-ups are classified as follows: depending on the imitation of the properties of design objects (artistic, aesthetic, structural, technological), depending on the design stage (functional, sketch, demonstration, for laboratory testing), by scale (life-size, reduced in various propor-

tions), by volume (volumetric, semi-volumetric, flat), by material of manufacture (paper, fabric, non-woven fabric, metal, plastic) [4].

Mock-up making is a creative process that synthesises various aspects of graphic, engineering and project activities, resulting in a mock-up. Scientists A. Vasin and A. Talashchuk distinguish the following functions of mock-up making: project, research, corrective, heuristic, prognostic, artistic-ideological, presentational and educational. The project function is related to the establishment and implementation of the idea, transformation, detailing and justification of project decisions, with constructive refinement of the shape in order to achieve the most optimal solution. The research function is manifested in the experimental variational search, testing of various directions of object transformation, compositional ratio and plastic solution of its parts and elements. The corrective function enables the analysis and comparison of the obtained results, the assessment of the feasibility of ideas, and their adjustment in the desired direction. Heuristic is the function of the mock-up to stimulate the designer's creative process, inspire invention, and promote the ability to overcome traditional approaches to solving project tasks. The prognostic function generates elements of novelty in the process of making a project decision, which are prospectively oriented towards a specific time period. Artistic-ideological function is used when developing project models as conveyors of the aesthetic preferences of the time and expressions of contemporary artistic culture. The presentational function is applied when defending theses projects, in advertising campaigns, or when the full-size mock-up or the product itself cannot be demonstrated. Educational function consists in the fact that the implementation of mock-up making in the educational design process allows students to learn to think and design in three-dimensional space, develops their imagination and sense of geometric and plastic harmony [4].

Subject modelling or mock-up making in the educational process is of great educational importance. Compared to real objects, mock-ups are of a somewhat different nature, as they only imitate a number of properties of the original and therefore differ from it in terms of quality. At the same time, however, it is the mock-ups that reflect the spatial features of the object on a specific scale, and this is perhaps the most important advantage of mock-up making in the process of students' artistic and engineering design activities [3]. The typology of mock-ups in design activities is represented by a wide range of synonymous names, but they can all be reduced to the following list: project-search, demonstrative, research or experimental mock-ups.

Students, acting as designers, gradually transform the conceptual image of the future object into a graphic representation. When making a mock-up, the creative idea becomes a tangible thing. One of the main advantages of mock-ups in artistic modelling is that they allow designers to work in familiar three-dimensional shapes, rather than in flat images. Mock-ups quickly capture the process of artistic modelling, its intermediate and final results, and characterise the features of the transition from the project concept to the industrial prototype; they help to examine the intended product in more detail, improve its shape, refine its proportions, colour, etc.

Making mock-ups involves creating functional mock-ups at all stages of project design and, along with graphic sketching, it becomes a creative method for developing solution choices. Functional mock-up making encourage students' active participation, as it involves mentally "measuring" the mock-up, searching for connections between its parts, checking different points of view and, most importantly, the connections between internal and external space. Mock-up making develops the ability to visually perceive and evaluate solutions, making the idea clear. During the creation of a functional mock-up, it is possible and important to record one's thoughts and analyse them [5].

Mock-up making in the process of teaching artistic clothing design proceeds through methods of three-dimensional modelling on a mannequin or human figure: dummy making and sketch pinning. Dummy making and sketch pinning serve as a platform for experiments in costume shaping, providing an opportunity for direct evaluation of work in the process of development and modelling, where the result can be completely transformed in the process of mock-up making. Modelling on a mannequin is considered to be the most accessible and effective method in the learning process, where students create the shape and lines of the future clothing model by pinning the mock-up material onto the mannequin [8].

Shape is the morphological and three-dimensional structural arrangement of an item that results from the meaningful transformation of material, that is, shaping. The use of the term "structure" in various fields of scientific knowledge (architecture, biology, geology, etc.) indicates that the study of any form is impossible without identifying and describing its structure, which is structural analysis. In scientific literature, the concept of "structure" is used in two meanings; in the first, structure is understood as the elements that compose it and the principle of their connection into a single whole; in the second, only the principle, the method of connection and the nature of the set of elements in the system. Modern scientists have identified a number of generalised structures of costume: geometric, shell-like, frame-like, case-like, net-like, folded, modular, spiral-like, etc. [6].

The recognition of the structure of the costume by students is extremely important in the process of shaping, as it allows them to identify and record changes in fashion based on key features. In the context of

costume design, these characteristics can be: structural-technological (the composition and properties of the materials from which the product is made, the method of manufacture); morphological (elements that form the spatial shape of the product); functional (the connection between form and purpose). It is worth drawing students' attention to the fact that, in addition to the texture of the fabric, the quality of the product's surface is determined by the type of weave and fibre composition. In clothing design, specially created textures with shaping properties are often used; the desired effect is achieved by changing the surface of the material through mechanical manipulation of the textile surface [2].

An analysis of the works of textile and clothing designers determines the current direction of teaching students the methods of artistic clothing design – the use of various means of textural shaping. The first direction is the formation of textures from a solid textile fabric; which can be divided into the following types: puffs (formed by pulling the fabric in a given direction and pattern), gathers (parallel, shaped, along a given contour), folds (corrugated, pleated, topstitched), darts (straight, oval, shaped).

The second direction includes textures made of sewn-on elements, including ruffles (sewn along straight and curved contours), flounces (sewn along open and closed contours), and folds (sewn on one side, bow-shaped, with overlaps).

The third direction includes textures made of sewn elements formed by conical and parallel expansion, semi-volumetric geometric elements, volumetric solid-cut textures, etc. [2].

The design of clothing shapes, varied in terms of filling, segmentation, and variability within the structure, can be achieved through the use of textural shaping of both individual textile fragments and the basic shape.

For the specifics of design education in higher education institutions, the following conclusion is important: if working with mock-up fabric requires long practice and skill, working with paper is more accessible and easier. One of the most methodically substantiated techniques of mock-up making in design is paper modeling, and in clothing design it is a reduced-scale project-search paper mock-up, in which the formally defined shaping transmits the plastic solution of the shape. The manufacture of clothing from paper, often with filigree cutouts, actualizes the use of paper plastic in mock-up making, "... the importance of which for creative laboratories as a means of developing shaping ideas and a way of maintaining creative tone" is extremely important in teaching artistic modelling [7].

The work of students with life-size paper mock-ups is more complex and unique. Such mock-ups can be created when solving specific tasks, such as obtaining a flat unfolding of a three-dimensional spiral-shaped cut, etc. Life-size paper mock-ups are common in the practical training of costume designers in theatre educational institutions, where historical costumes are recreated in this way, and students learn to imitate different materials in order to find the most expressive ones for the realisation of directors' ideas in productions [1]. However, life-size mock-up making technology can also be implemented in artistic modelling classes in higher education institutions, which will add emotional excitement to the learning process as a whole, since the results of such creative activity can be demonstrated on the catwalk or at competitions for young designers.

Conclusions. Therefore, artistic and design creativity is now considered a complex structure that includes intellectual, emotional-intuitive and willful factors in various combinations and ratios. The educational and methodological aspects of mock-up making considered are an important component of teaching students artistic modelling. The interconnection of traditional and innovative design methods in the educational process of higher education institutions is an effective means of developing students' creativity and a stimulus for creating new product models, as textural shaping is a powerful means of conveying the expressiveness of both the surface of the material and the shape of the product. The research into the possibilities of textural shaping and mock-up making broadens the range of learning outcomes for students in artistic modelling classes and encourages future specialists to further improve their professional skills.

ЛІТЕРАТУРА

1. Кісіль М.В. Макетування в дизайні одягу: навчально-методологічний аспект. *Вісник Харківської державної академії дизайну і мистецтв*. 2011. № 10. С. 39–41.

2. Кісіль М.В. Фактурне формоутворення в текстилі: актуальні напрямки та тенденції використання в дизайні одягу. *Вісник Харківської державної академії дизайну і мистецтв*. 2012. № 8. С. 22–24.

3. Костенко Т.В. Основи композиції та тримірного формоутворення : навчально-методичний посібник. Видання друге, перероблене та доповнене. Харків : ХДАДМ, 2003. 256 с.

4. Луговський О.Ф. Пошукове макетування проектного образу в промисловому дизайні : дис. на здобуття наук. ступеня канд. мистецтвознавства. Спец. 17.00.07 "Дизайн" / Луговський Олександр Федорович ; Мін-во освіти і науки України. ХДАДіМ. Харків, 2018. 321 с.

5. Михайленко В.Є., Яковлєв М.І. Основи композиції (геометричні аспекти художнього формотворення): Навч. посіб. для студ. вищих навч. закладів. Київ : Каравела, 2004. 304 с.

6. Ніколаєва Т.В. Тектоніка формоутворення костюма : навч. посіб. для студ. вищих навч. закладів. Київ : Арістей, 2007. 224 с.

7. Орлова Н.С. Використання перспективних методів проєктування природоінтегрованої архітектури у процесі навчання майбутніх викладачів дизайну. *Молодь і ринок*. № 6–7 (214–215), 2023. С. 51–55.

8. Основи теорії проектування костюма : підр. для вузів / під. ред. Т.В. Козлової. Київ : Світ, 2018. 352 с.

REFERENCES

1. Kisil, M.V. (2011). Maketuvannia v dyzaini odiahu: navchalno-metodolohichnyi aspekt [Modeling in Design of Clothes: Educational and Methodological Aspect]. *Bulletin of the Kharkiv State Academy of Design and Arts.* No. 10. pp. 39–41. [in Ukrainian].

2. Kisil, M.V. (2012). Fakturne formoutvorennia v tekstyli: aktualni napriamky ta tendentsii vykorystannia v dyzaini odiahu [Textile Invoicing: Current Trends and Trends in Apparel Design]. *Bulletin of the Kharkiv State Academy of Design and Arts.* No. 8. pp. 22–24. [in Ukrainian].

3. Kostenko, T.V. (2003). Osnovy kompozytsii ta trymirnoho formoutvorennia : navchalno-metodychnyi posibnyk. [Fundamentals of composition and three-dimensional form formation: educational and methodological manual]. Second edition, revised and supplemented. Kharkiv, 256 p. [in Ukrainian].

4. Luhovskyi, O.F.(2018). Poshukove maketuvannia proektnoho obrazu v promyslovomu dyzaini : dys. na zdobuttia nauk. stupenia kand. mystetstvoznavstva. Spets. 17.00.07 “Dyzain” [Search mock-up making of a design image in industrial design : dissertation for the degree of candidate of arts. Specialization 17.00.07 “Design”] / Lugovsky Oleksandr Fedorovych; Ministry of Education and Science of Ukraine. KhDADiM. Kharkiv. 321 p. [in Ukrainian].

5. Mykhailenko, V.Ye. & Yakovliev, M.I. (2004). Osnovy kompozytsii (heometrychni aspekty khudozhnoho formotvorennia) : Navch. posib. dlia stud. vyshchykh navch. zakladiv [Fundamentals of composition (geometric aspects of artistic form-making): Textbook for students of higher educational institutions]. Kyiv, 304 p. [in Ukrainian].

6. Nikolaieva, T.V. (2007). Tektonika formoutvorennia kostiuma : navch. posib. dlia stud. vyshchykh navch. zakladiv [Tectonics of costume formation: a textbook for students of higher educational institutions]. Kyiv, 224 p. [in Ukrainian].

7. Orlova, N.S. (2023). Vykorystannia perspektyvnykh metodiv proiektuvannia pryrodointehrovanoi arkhitektury u protsesi navchannia maibutnikh vykladachiv dyzainu [The use of promising methods of designing nature-integrated architecture in the process of training future design teachers]. *Youth & market.* No. 6–7 (214–215). pp. 51–55. [in Ukrainian].

8. Osnovy teorii proektuvannia kostiuma : pidr. dlia vuziv (2018). / pid. red. T.V. Kozlovoi [Fundamentals of costume design theory: textbook for universities / ed. by T.V. Kozlova]. Kyiv, 352 p. [in Ukrainian].

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ОРГАНІЗАЦІЯ ПРОЄКТНОЇ ДІЯЛЬНОСТІ В ІНКЛЮЗИВНОМУ КЛАСІ НА УРОКАХ ІНТЕГРОВАНОГО КУРСУ “Я ДОСЛІДЖУЮ СВІТ” (ЗА ДОПОМОГОЮ ЗАСОБІВ АДК)

У статті розглянуто особливості організації проєктної діяльності в інклюзивному класі на уроках інтегрованого курсу “Я досліджую світ” із використанням засобів АДК. Розкрито сутність методу проєктів та особливості планування й організації проєктної діяльності на уроках. З’ясовано, що систематичне залучення учнів до проєктної діяльності сприяє ефективному засвоєнню змісту природничої освітньої галузі. Окреслено форми залучення учнів з особливими освітніми потребами до проєктної діяльності: індивідуальні проєкти; групова робота в мікрогрупах; ігрові форми проєктної діяльності; проєкти, орієнтовані на конкретні інтереси учнів; інтегровані проєкти; тематичні виставки та презентації; використання візуальних і тактильних матеріалів; мультимедійні та