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AESTHETIC PERCEPTION OF COLOUR IN TRAINING OF DESIGN STUDENTS

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ABSTRACT

The article examines the aspects of colour training of design students, discusses the concept of colour competence and its importance in the process of professional training of future specialists in the field of design. The purpose of the article is to study the aesthetic perception of colour in the process of colour training of design students. Colour is highlighted as the most important element of aesthetic perception and emotional expression of design objects, has a psychoemotional impact on the receiver (audience) and carries a certain informational value. The aesthetic perception of colour is understood as a complex process in which the awareness of aesthetic, artistic, and spiritual values takes place from the standpoint of sociocultural and historical factors. The need for colour competence through the study of a complex of professional disciplines is emphasised, which is decisive in the process of training design students. The study presents separate tasks using interactive technologies that contribute to the formation of aesthetic perception of colour in the process of colour training of students of higher education in the speciality 022.01 Design of the educational and professional programme "Graphic design" SI "Luhansk Taras Shevchenko National University". It is noted that the development of colour competence of design students is an important prerequisite and indicator of their readiness for professional activity.

Keywords: aesthetic perception; colour; competence; colour competence; design students.

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INTRODUCTION

The design ideas of the modern changing information and communication environment reflect the general trends of the socio-cultural reality. The purpose

of designer things, their perception, actively changes according to the needs of the receiver of information (audience), who are direct participants in the design process. The coronavirus epidemic serves as a striking illustration, particularly in successful design projects. For instance, the protective mask, primarily a medical item, has undergone design adaptations, transforming it into a medium for self-expression and aesthetic appreciation. This evolution includes fabric masks, artistically embellished masks with drawings, and diverse colour schemes.

One of the main tasks of design is to satisfy the aesthetic needs of a person in all spheres of life by arranging and harmonising the subject-spatial environment. In such conditions, the main task of a specialist in the field of design is to design elements of the environment that correspond to the level and content of social and cultural values. Since design in the modern socio-cultural space is focused on various components of material and spiritual culture, design activity takes into account the aesthetic, spiritual-emotional and value spheres of the human consumer. Therefore, the task of professional training of designers capable of meeting the needs of society in harmonizing and beautifying the environment is urgent (Bondar, 2019).

PROBLEM STATEMENT

Recognizing the current demand for highly qualified design professionals in the competitive labour market, there is a growing need to update the content of their professional training in accordance with current higher education strategies (Mospan, 2022). The designer's professionalism extends to various competencies, where colour plays a key role. Development of theoretical understanding, practical application of colour, solving problems related to colour is important for future designers.

Possession of colour science and aesthetic understanding of colour perception, combining colour combinations, harmonious use of accents, nuances, tonal divisions in created design objects are necessary skills for professional design activities. Aesthetic perception of colour is one of the most important components of a designer's colour competence. Correct understanding, analysis and creative interpretation of the colour scheme will contribute to the integrity of the design object, develop the future design specialist as a creator who is capable of self-development and self-improvement. Insufficient attention to this issue in the teaching of the disciplines of the professional cycle, changing priorities in the training of future designers, their limited adaptability to educational opportunities and the growing demand for highly qualified specialists in the field of design — all this requires a thorough study of the specified topic.

BACKGROUND

National scientists (V. Andrushchenko, O. Dubaseniuk, S. Savchenko, S. Kharchenko) write about the education organization in higher education

institutions. Besides, national scholars addressed the issues of competencies development in design education (O. Boychuk, O. Vasina, and S. Milkevich) and its aesthetic component in particular (E. Antonovych, I. Zyazyun, V. Butenko, and V. Tomashevskyi).

Current publications focus on digital transformation of educational environment (López-Meneses et al., 2020; Mospan, 2023). In this term, scholars (Ahmed, & Gurumoorthy, 2017; Dong, 2017; Ilieva et al., 2022; Itten, 2020; Chen et al., 2022; Curtis-Boles & Bourg, 2010) consider various aspects of the influence of colour on a person. These include psychophysiological effects, information perception, and spatial understanding. However, these studies do not comprehensively cover the topic. The issue of colour training of future designers remains insufficiently researched, there are no theoretical and methodological developments regarding content, formats, methodologies, technologies, as well as scientific and informational support necessary for effective colour training.

METHODOLOGY

The research was based on the posed problem of aesthetic perception of colour in the modern changing information and communication environment, in which design ideas reflect the general trends of socio-cultural reality. To find out the state of the raised problem, a set of scientific research methods was used: interdisciplinary analysis of philosophical, art history, psychological, and pedagogical literature. To substantiate the theoretical provisions and formulate the conclusions, the analysis of research literature, Internet sources are used; practical experience of specialists in the field of design; the synthesis and generalisation of scientific principles revealed the current state of colour training of future designers, allowing to determine the directions of research and the conceptual basis in this field.

RESULTS

The modern system of providing educational services to students is based on an approach to learning through the formation of relevant competencies (Brauer, 2021). The DeSeCo (Definition and Selection of Competencies) program, which has been in effect since 1997, defines competencies as the ability to effectively satisfy individual or public needs, to perform assigned tasks. According to the interpretation, competencies consist of interrelated cognitive attitudes, practical skills, values, emotions, behavioural elements, knowledge and abilities that can be applied to active activities (Rychen & Salganik, 2001, p. 8). Similarly, the International Bureau of Standards for Teaching and Learning (IBSTPI) defines competence as the ability to perform an action, task or job competently. This concept covers the set of knowledge, skills, abilities needed by an individual for effective activity or performance of relevant functions

aimed at achieving established standards in their professional field (Foxon, 2023, p. 144).

In understanding the colour competence of future designers, we define that it is a comprehensive understanding of the concept of colour, its shades, harmony, aesthetic perception and the psychological impact of the choice of colour on the receiver (audience). The formation of colour competence in future designers takes place within the framework of certain pedagogical conditions during their professional training. The content of educational components from the cycle of professional training (Fundamentals of composition and colour science, Painting, Drawing, Projecting, Computer design and modelling, and Basics of forming and mock-up) is aimed at acquiring knowledge in the field of colour science, which involves mastering principles, techniques and skills in the use of colour harmonies, the construction of colour schemes integral to design, the study of their expressive possibilities, the development of aesthetic taste and the promotion of creativity.

In the formation of colour competence, important components are the aesthetic perception of colour as a determination of the integrity of the design object, the study and interpretation of colours in accordance with the creative plan. Aesthetic perception is defined as a person's ability to perceive and evaluate the degree of aesthetic perfection of the material and spiritual world. This allows us to make the right decisions regarding the formation and development of aesthetic culture, which is manifested in the evolution of art perception from the standpoint of socio-cultural and historical processes, reveals the specifics of human awareness of various forms of beauty through the categorical definition of beautiful, perfect, harmonious, valuable.

It is important to understand aesthetic perception in the process of training designers as a unique form of their spiritual self-awareness and creative realization. On the basis of the development of aesthetic perception, it is possible to show the available possibilities of positioning the future specialist as an object of artistic and creative activity, revealing readiness for independent awareness, for deep creative understanding of aesthetic phenomena, for the development and implementation of one's own aesthetic views on individual objects, phenomena, processes.

The ability to realize in practice the aesthetic potential for obtaining one's own original result of creative activity is key in the professional activity of the future designer. The educational component "Fundamentals of Composition and Colour Studies" is the basis of the colour training of designers, which is one of the basic disciplines of bachelor's training in the speciality 022.01 Design of the educational and professional programme "Graphic design" SI "Luhansk Taras Shevchenko National University". In the process of learning, the educational component allows future designers to systematically and consistently learn the theoretical foundations of composition and colour science, professional terminology, compositional rules, patterns of colour perception and harmonies, principles and means of artistic expression

in the process of designing and implementing design objects. The goal of studying the discipline is the creative assimilation and practical consolidation of the basic concepts and laws of composition and colour science, principles and means of artistic expression in the process of designing and implementing any design product, and the formation of skills in performing colour compositions based on a harmonious combination of colours.

Colour science is the science of colour. In the modern informational and communicative environment, the issues of colour theory are relevant, which actively contribute to the solution of problems related to the study, perception, harmonization and application of colour at a deeper, systematized level. This approach takes into account historical and theoretical aspects of research and is based on knowledge and understanding of previous experience not only in the field of colour science, but also at the intersection of other sciences: physics, chemistry, physiology, psychology, biology, and mathematics.

The development of colour science makes it possible to see colour more broadly, to reveal more deeply its shades and nuances. Fundamental studies by Johannes Itten, Johann Wolfgang Goethe, Isaac Newton and other scientists made it possible to use systematic knowledge of colour systems to work with natural and artificial pigments, to understand how colours interact with each other, how to combine them, how to work with shades and tones.

The use of colour is given great importance. Each colour has its own associative purpose, metaphorical essence, aesthetic perception. The history of colour classification can be divided into two periods: mythological-religious and natural-scientific. Since the most ancient history, man has used different colours for drawings, which can be used to determine the different purpose of colour shades. Primitive people used red colour as the personification of heat, sun, hearth, but, at the same time, it symbolised blood. White personified the image of water, light, milk, and black symbolised darkness, death and evil. Thus, at the stages of development of primitive society, colour functioned as a tool of differentiation or selection and designation of the most important aspects of human life.

Today, in the formation of a qualified and practical colour solution of design objects, the ability to operate with various properties of colour is necessary and relevant. This requires an understanding of the nature of colour and its characteristics such as tone, chromaticity, saturation, brightness, contrast, hue, etc. This involves obtaining information about evolutionary changes in the definition of colours in colour models, understanding colour formation and features of visual colour perception. In addition, it is important to use special knowledge in creating harmonious colour combinations, developing colour profiles, applying colour separation methods and implementing colour reproduction technologies (Bartholomew & Rutherford, 2013).

On the other hand, colour perception is a complex psychophysical process that depends on the natural and biological structure of the human eye. Colour is perceived as a conscious visual sensation. When looking at an object,

it may seem that the colour is a component of the object itself, as if the colour is built into it, but in fact it is not. Aesthetic perception of colour is an even more complicated process. Awareness of aesthetic, artistic, and spiritual values from the standpoint of sociocultural and historical processes is added to the previously considered aspects in aesthetic perception (Kostiuk, 2022).

We will present separate tasks using interactive technologies that contribute to the formation of the aesthetic perception of colour in the process of colour training of students of higher education in the speciality 022.01 Design of the educational and professional program Graphic design. We will define that the formation of colour competence in future design specialists is an important prerequisite and indicator of readiness for professional activity.

In the process of colour training of students from the educational component "Fundamentals of composition and colour science», during the study of the topic "Colour science as a science", the following are studied: colour as a cultural phenomenon, historical, cultural and philosophical aspects of the semantics and symbolism of colour; traditions, rituals, spiritual practices related to colour; problems of colour harmony in the process of historical and social development. In the process of developing the theoretical material, attention is focused on the peculiarities of the aesthetic perception of colour during the development of cultures and societies of different peoples. The semantics and ornaments of Tryplian culture, samples of ancient painting, mosaics, frescoes, stained-glass windows of the Middle Ages and, accordingly, canvases of painting masters, starting from the Renaissance to the present day, are analysed.

It is emphasized that the definition of the problem of colour harmony appears as the most difficult problem of aesthetics due to the special attitude of a person to colour, which is formed under the influence of various complex factors. In this regularity, in its specific historical context, regardless of cultural, social, and time boundaries, universal ideals and values are developed and cultivated. Therefore, in accordance with the "Ideal image", "Ideal model", from the standpoint of cultural history, it is possible to trace the dynamics of the definition of the concept "Colouristic ideal". Students of higher education are offered the task of solving a problem or situation related to the aesthetic perception of colour. As an educational method, case technologies are used, appropriate educational and methodological support, illustrative material is added. The identified problem is "Colouristic ideal".

Case. 1. The Greek philosopher Empedocles (5th century BC) was one of the first thinkers to explore the essence of colour. He proposed four primary colours — white, black, red and yellow — which corresponded to the basic elements: fire, air, water and earth. The preserved works of art of that era, in particular the paintings on vases, clearly show these colours and their combinations. The study of colour was continued in the writings of Plato, Aristotle and various ancient philosophers. Amid ancient thinkers' deep belief in numbers, logic, and the ideal nature of colours, the initial psychophysiological understanding of colours emerged in practical applications.

The term 'chromaticism'covers the essence attributed to ancient authors, including:

- colour as a mental, immaterial, ideal concept;
- colour as a physical, objective, material substance;
- physiological influence of colour on the human body;
- emotions under the influence of their information and energy balance.











Fig. 1. Colour in antiquity

Case. 2. In the Middle Ages, the interpretation of the semantics of colour strictly followed the religious doctrines of Christianity and Islam. Elements of the theory of colour harmony began to appear in the works of scientists of that era. Many philosophers accepted the Aristotelian concept of the "golden mean" in aesthetics, but the concept of harmony underwent a new interpretation, emphasising not unity, but the conflict of opposites. This rethinking led to the appearance of bright contrasts in colour schemes. Stained-glass windows were characterized by high colour saturation, complemented by the brilliance of mosaics, precious metals and precious stones.



Fig. 2. Medieval colour harmony

Case. 3. The Renaissance saw a marked shift from the symbolic meaning of colour to the development of more pragmatic and visually appealing colour systems. Furthermore, the question of colour in the Renaissance was further complicated by the individualized nature of art: each country, school of art, and even individual masters displayed distinct colour preferences. Colour harmony at that time was based on contrasting tonality and brightness. However, these chromatic contrasts were softened by techniques such as chiaroscuro and aerial perspective, softening the impact of colour variations.

To summarise, in the teaching of the specified topic "Colouristic ideal" case technologies are used as an interactive method of learning, which solves the problem of aesthetic perception of colour. A certain complex of knowledge

on the historical, cultural and philosophical aspects of the semantics and symbolism of colour is updated, the communicative and creative abilities of higher education students to solve the problem of colour harmony in the process of historical and social development are activated. Future designers learn to analyse, aesthetically evaluate and find alternative ways to solve a task.









Fig. 3. Colour harmony of the Renaissance

In the process of studying the topic "Theory of colour harmony. Harmony of nuances" from the educational component "Fundamentals of composition and colour science" posed problematic questions: How to create an aesthetically favourable and at the same time unladen gamut? What aesthetic reference can colour provide? If the main colour is chosen, how to choose additional ones for harmony?, the solution of which is based on the normative theories of harmonious combinations of colours by R. Adams, A. Mansel, and V. Oswald.



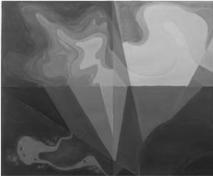




Fig. 4. Works of design students

In the process of colour training of future designers, an actual task involves the gradual transformation of a sketch or image through separate stages:

- begin by selecting a sketch created from nature that includes spatial, lighting, tonal, and compositional concerns;
- analyse the construction of colour harmony in the sketch by identifying key components such as contrasting pairs, dominant and accent colours, complementary shades, unifying tone that connects the overall colour scheme;
- change the overall tonality of the sketch by emphasizing and combining contrasting colours and tonal shades around a common middle tone, enhancing unity while maintaining colour contrasts;

— further transform the sketch by tonally uniting all the elements using the middle tone, while maintaining the colour contrasts. This involves adjusting and stretching, mostly on one light-medium colour.

To understand colour and its spectrum, future designers are faced with the task of creating abstract gouache compositions on watercolour paper. These compositions include such exercises as working with "pure colour"; inclusion of "bleached colour" with the addition of white paint; experimenting with "darkened colour" through the addition of black paint; the use of exclusively "saturated colour"; the study of shades of "pastel colours"; creation of "autumn abstraction" using warm shades; creation of "winter abstraction" using cold shades; construction of "night abstraction" using dark tones.

In the process of colour training from the educational component "Fundamentals of composition and colour science", during the study of the topic "Psychology of colour perception", the following are studied: objective factors that affect colour perception and subjective (physiological, psychological, and aesthetic) factors that determine colour associations and colour symbolism, national and cultural specificity of colour perception, examples of colour solutions are given. Objective factors include: characteristics of the object, light sources of the environment, lighting and colour of neighbouring elements, perspective of perception. We determine that colour subjectively affects the physiological and psycho-emotional aspects of the audience. Therefore, we emphasise that when choosing a colour scheme in design objects, it is necessary to rely on the physiology and psychological portrait of the average audience: (gender, age, physical condition, character, peculiarities of thinking, and emotional). The approximate impact of a colour solution on a person is also determined through associations, metaphorically, aesthetic perception. Association acts as a subjective image that arises outside human consciousness in the form of connections between phenomena and objects of the real world. Metaphor is the transfer of features of one object to another based on their similarity. Aesthetic perception is based on the definition of beautiful, perfect, harmonious, valuable to the relevant culture and society.

Students of higher education are offered the task: Prepare for a brainstorm on the topic: "What is the essence of a personally-oriented presentation of a colour decision". Brainstorming is divided into several stages: generation of ideas, selection of the best idea, analysis. At the beginning, participants without criticism and evaluation can express thoughts (even absurd, fantastic), connecting emotions, relying on associations, metaphors, subjective aesthetic perception of colour. Creative activity of students of higher education is stimulated with the expression of the maximum number of decision options. In the future, the most rational ones are chosen, already with an orientation to the receiver of information (audience). So, the purpose of the brainstorming on the topic: "What is the essence of a personally-oriented presentation of a colour decision" is to reveal the meaning of the concept of psychology of colour perception, to determine the objective factors that affect the perception of colour

and subjective (physiological, psychological, and aesthetic). During the class, the participants find ways to solve the problem situation, which is related to the aesthetic perception of colour as a structural component of the colour competence of future designers.

CONCLUSIONS AND PROSPECT

Colour training of future designers plays a key role in the development of their competence in the field of design. Modern requirements for future designers, the definition of professional tasks, the performance of which is necessary in the process of practical activity, emphasize the importance of developing colour competence as an integral part of the educational components of the cycle of professional training. This development focus contributes to the formation of future designers into unique, competitive and sought-after professionals in today's design market. Prospects for further research are related to the improvement of educational methodologies and educational and methodological support, adapted to the colour training of future designers. This includes enriching the content with creative and scientifically oriented tasks, developing a methodology for diagnosing the levels of colour competence of future designers, a special course on the aesthetic perception of colour for students of the educational level «bachelor» in the speciality 022.01 «Design» of the educational and professional program «Graphic design» and its implementation in the practice of teaching work.

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ЕСТЕТИЧНЕ СПРИЙНЯТТЯ КОЛЬОРУ В ПРОЦЕСІ КОЛОРИСТИЧНОЇ ПІДГОТОВКИ МАЙБУТНІХ ДИЗАЙНЕРІВ

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У статті розглядаються аспекти колористичної підготовки обговорюється дизайнерів, концепція колористичної компетентності та її значення в процесі професійної підготовки майбутніх фахівців в галузі дизайну. Мета статті полягає у дослідженні естетичного сприйняття кольору в процесі колористичної підготовки майбутніх дизайнерів. Колір висвітлюється як найважливіший елемент естетичного сприйняття та емоційного вираження об'єктів дизайну, що справляє психоемоційний вплив на приймача (аудиторію) та несе певну інформаційну цінність. Естетичне сприйняття кольору розуміється як складний процес, в якому відбувається усвідомлення естетичних, мистецьких, духовних цінностей з позиції соціокультурних та історичних факторів. Необхідність колористичної компетентності шляхом вивчення комплексу професійних дисциплін підкреслюється як вирішальна в процесі підготовки майбутніх дизайнерів. У дослідженні наведені окремі завдання з використанням засобів інтерактивних технологій, які сприяють формуванню естетичного сприйняття кольору в процесі колористичної підготовки здобувачів вищої освіти спеціальності 022.01 «Дизайн» освітньо-професійної програми «Графічний дизайн» ДЗ «Луганський національний університет імені Тараса Шевченка». Зазначено, що формування колористичної компетентності майбутніх дизайнерів є важливою передумовою та показником їх готовності до професійної діяльності.

Ключові слова: естетичне сприйняття; колір; компетентність; колористична компетентність; студенти-дизайнери.

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