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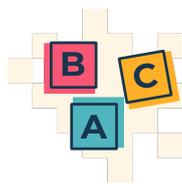
**Generative AI for developing personalized male image strategies in barber
education**

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Abstract. *The integration of generative artificial intelligence into barbers' professional training offers opportunities to systematically develop personalized strategies for men's image. The use of generative models enables future masters to learn to analyze individual appearance parameters, current stylistic trends, and client preferences, thereby enabling the adaptation of training programs to the specifics of professional activity. The **purpose of the study** is to develop a methodological approach to the use of generative artificial intelligence to formulate personalized strategies for men's image in the barber training educational process. The study used **methods** of analyzing scientific sources, modeling male style options with generative neural networks, experimental testing of the developed strategies, and administering questionnaires to participants in the educational process. **Results.** It is shown that the use of machine learning algorithms enables structuring appearance parameters, stylistic preferences, and professional requirements, thereby enabling accurate prediction of optimal image options and effective planning of educational activities. The study found that the use of generative artificial intelligence increases the efficiency of the educational process, enables the*



*formation of personalized educational trajectories, and promotes the development of critical and creative thinking among students in the field of men's style. The use of digital tools not only supports practical skills but also stimulates a deep understanding of modern trends in professional barbering. **Conclusions.** Generative artificial intelligence is an effective means of personalizing educational strategies in barber training, thereby contributing to the comprehensive development of professional competencies and opening up prospects for the introduction of innovative technologies into professional education. The practical significance lies in the possibility of applying the developed models in educational institutions and professional salons to optimize curricula and improve the quality of service provision.*

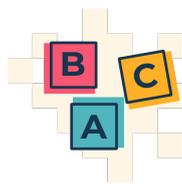
Keywords: *generative models, education personalization, male style, professional training, barber competence, digital technologies.*

Генеративний AI для створення персоналізованих стратегій чоловічого образу в барберській освіті

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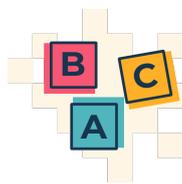
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Анотація. *Інтеграція генеративного штучного інтелекту у професійну підготовку барберів забезпечує можливості для системного формування персоналізованих стратегій чоловічого образу. Застосування генеративних моделей надає можливість майбутнім майстрам навчатися аналізувати індивідуальні параметри зовнішності, актуальні стилістичні тренди та переваги клієнтів, що сприяє адаптації навчальних програм до специфіки*



професійної діяльності. **Метою дослідження** є розробка методологічного підходу до використання генеративного штучного інтелекту для формування персоналізованих стратегій чоловічого образу в освітньому процесі барберської підготовки. У межах дослідження застосовано **методи** аналізу наукових джерел, моделювання варіантів чоловічого стилю за допомогою генеративних нейромереж, експериментальну апробацію розроблених стратегій та анкетування учасників навчального процесу. **Результати.** Показано, що використання алгоритмів машинного навчання дозволяє структурувати параметри зовнішності, стилістичні уподобання та професійні вимоги, забезпечуючи точне прогнозування оптимальних варіантів образу та ефективного планування освітніх заходів. Результати дослідження довели, що застосування генеративного штучного інтелекту підвищує ефективність навчального процесу, дозволяє формувати персоналізовані освітні траєкторії та сприяє розвитку критичного й креативного мислення у сфері чоловічого стилю у студентів. Використання цифрових інструментів не лише підтримує практичні навички, а й стимулює глибоке розуміння сучасних тенденцій професійної барберської діяльності. **Висновки.** Генеративний штучний інтелект є ефективним засобом персоналізації освітніх стратегій у барберській підготовці, що сприяє комплексному формуванню професійних компетенцій і відкриває перспективи для впровадження інноваційних технологій у професійну освіту. Практичне значення полягає у можливості застосування розроблених моделей у навчальних закладах та професійних салонах для оптимізації навчальних програм та підвищення якості надання послуг.

Ключові слова: генеративні моделі, персоналізація освіти, чоловічий стиль, професійна підготовка, барберська компетентність, цифрові технології.

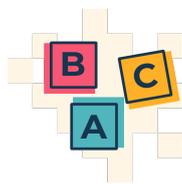


Problem statement. Creating an individual male image is a key aspect of barbers' professional competence, which determines the quality of service provision and compliance with customer expectations. Modern training programs provide theoretical knowledge and develop practical skills; however, the development of the ability to create personalized stylistic solutions that account for individual appearance parameters, customer preferences, and the dynamics of male style trends is not sufficiently emphasized. As a result, there is a gap between students' competencies and professional requirements, and the effectiveness of developing vocational education applicants' creative thinking skills is also reduced.

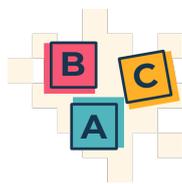
The integration of generative artificial intelligence (AI) opens up wide opportunities for modeling various styling options, analyzing appearance parameters and predicting the compliance of style with current trends and individual requests. Despite existing research on the application of AI in education and digital image modeling, the systematic use of generative models in professional barber training has not been well studied.

In this regard, developing a methodological approach to the use of generative AI to build the ability to formulate personalized strategies for a male image in the educational process is relevant. This approach contributes to adapting curricula to the needs of education seekers, stimulates the development of critical and creative thinking, and fosters the development of professional competencies that meet labor-market requirements.

Analysis of recent research and publications. The problems of digitalization of education, the development of flexible and supra-professional competencies of education seekers, the combination of digital and traditional teaching methods, and the adaptation of educational systems to globalization requirements are actively studied by modern domestic and foreign scientists. L. Hrabko [1] reveals innovative approaches to teaching blonde techniques in the professional training of salon specialists, demonstrating how new methods combine



theoretical knowledge and practical skills, contributing to the individualization of the educational process. M. Bogopolsky [2] analyzes the impact of digital and creative strategies on the choice of commercial space of Generation Z, emphasizing the importance of technology for the development of adaptive competencies. A. Pavlenko [3] highlights the psychological aspects of personalization through symbolism on the skin, which shows the potential of an individual approach to learning, taking into account the characteristics of students. O. Sagan [4] explores the organization of personalized learning using artificial intelligence, demonstrating the effectiveness of digital tools for developing practical skills and critical thinking. H. Alamri, W. Lowell, V. Watson, and S. L. Watson [5] assess the role of a personalized approach in motivating students in higher education, showing that individual educational trajectories increase their engagement and learning effectiveness. C. Schmitt, A. Brutzer [6] consider the use of generative AI to develop professional competencies in teachers and students, ensuring the adaptability of educational programs. Y.-Z. Lin et al. [7] explore the integration of generative AI and digital twins for Industry 4.0, including VR technologies and zero-shot tone analysis, which allows for more effective formation of practical skills in learners. A. Yunus, P. R. Gay, and O. T. Lee [8] analyze the impact of generative technologies on the development of metacognitive strategies and personalization of learning, emphasizing the pedagogical benefits of AI. Authors I. Reihanian, Y. Hou, and Q. Sun [9] review the practical use of generative AI in computer science, demonstrating its effectiveness for developing critical thinking and personalizing educational trajectories. O. Sagan and V. Lazaruk [10] explore the transformation of educational technologies based on digital didactics, noting the role of innovative methods in the development of creative skills. G. S. Malcorra [11] emphasizes the importance of digital solutions in color and styling choices, with direct application to modeling the male image in barber education. K. Olszewski et al. [12] demonstrate generative models for hair and beard synthesis, ensuring the style

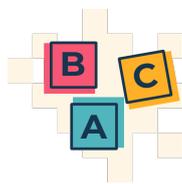


adapts to clients' individual parameters. A. Grigorev et al. [13] explore the creation of full-bodied avatars using generative algorithms, which opens up prospects for digital modeling in professional training. N. Nychkalo, N. Lazarenko, and R. Hurevych [14] analyze the digitalization and informatization of educational systems, focusing on the challenges and adaptation of curricula to modern conditions. V. Sklyarova, E. Zakharov, O. Hilliges, M. J. Black, and J. Thies [15] demonstrate the capabilities of technologies for intuitive and interactive generation of hair and beard using neural networks, which can be effectively applied in educational cases of barber education. Y. Feng et al. [16] investigate the practical use of innovative technologies, demonstrating how AI-VR enables the effective creation of realistic training data and improves the quality of barber training in a virtual environment. The analyzed sources indicate that the modernization of vocational education is closely related to global digital transformations. The use of generative AI in the training of beauty industry masters opens new opportunities to personalize the educational process and develop students' critical and creative thinking.

Highlighting previously unresolved parts of the general problem.

Analysis of scientific sources shows that research on the application of intelligent systems in professional education, particularly in digital style modeling, is fragmented. There is a lack of systematic use of generative models in barber training to create personalized male image strategies that simultaneously account for appearance parameters, current stylistic trends, and clients' individual preferences.

Comprehensive methods for assessing the effectiveness of digital algorithms in the educational process, particularly in developing creative skills, critical thinking, and students' practical competence, have not been developed. There are no standardized approaches to adapting educational trajectories to the specifics of professional activity and the dynamics of the service market, underscoring the



relevance of the study, which examines the implementation of innovative digital technologies in master barber training.

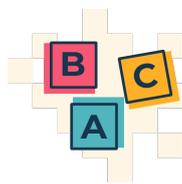
Formulation of the article objectives (statement of the task). The aim of the article is to develop a methodological approach to the use of generative AI models in the professional training of barbers to form personalized strategies for a male image.

To achieve this goal, the following tasks have been defined:

1. To assess the possibilities of using generative neural networks for modeling male style options, taking into account individual parameters of appearance, current stylistic trends and client requests.
2. To verify the effectiveness of the developed strategies in the educational process by assessing the dynamics of the development of creative skills, critical thinking and practical professional competencies of students.
3. To offer recommendations on the personalization of educational programs in barber training and the implementation of digital technologies in order to increase the effectiveness of the educational process.

Achieving the outlined tasks will lay the foundation for the systematic integration of generative models into professional education, enhance student training, foster creative and critical thinking, and develop competencies aligned with the requirements of the professional services market.

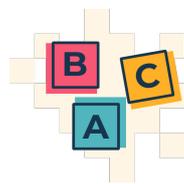
Presentation of the main research material. Modern professional training for barbers takes place amid rapid digital transformation of the service sector, increasing demands for individualized client service, and the constant dynamics of male style trends. The formation of a personalized male image is increasingly viewed not only as a set of technical skills but also as a complex professional process that combines analytical thinking, creativity, knowledge of stylistic patterns, and the ability to adapt solutions to individual appearance and client requests. In this context, generative AI serves as a tool that can provide systemic support for the professional



training of future barbers. Generative AI models enable multifactorial analysis of appearance parameters, stylistic trends, and client preferences, as well as modeling alternative versions of the male image in the educational environment. This creates conditions for the transition from unified to adapted educational approaches focused on real professional tasks [1].

Training in individualized modeling of male style variants in professional barber training is based on the use of generative neural networks capable of processing multidimensional input data sets and generating stylistically consistent images. The key modeling parameters include morphological characteristics of appearance (face shape, proportions, hair and beard type), stylistic markers (length, texture, line geometry, styling type) and individual preferences of clients, reflected in queries, sociocultural context and lifestyle [2]. Generative AI models are used to generate stylistic variants based on a combination of appearance parameters and current trends in male style. Machine learning algorithms provide clustering of stylistic solutions based on the level of compliance with anatomical features and aesthetic requirements, allowing for a well-founded choice of the optimal image. In the educational process, this is implemented through the creation of digital modeling scenarios, within which students analyze the proposed options, assess their compliance with professional criteria and adjust stylistic parameters [3, p. 1351].

A feature of generative neural networks is the ability to iteratively improve an image by changing individual stylistic characteristics without compromising the model's integrity [4]. This approach ensures the development of students' skills in the analytical comparison of alternative solutions, the development of spatial thinking, and the ability to argue for the choice of a stylistic concept. The modeling process acquires a research character, since each stylistic solution is considered the result of the interaction among appearance parameters, trend guidelines, and professional standards.



The integration of generative AI models into educational tasks allows you to structure the process of forming a male image in stages: analysis of initial parameters, generation of stylistic options, expert assessment of the image's compliance and making a final decision [5, p. 243]. This approach provides methodical control of the educational process, increases the accuracy of stylistic decisions, and contributes to the formation of the barber's professional competence as a specialist capable of working with individualized client requests in a digital environment.

To systematize the process of modeling personalized variants of men's style using generative neural networks, a set of parameters was determined that provides a comprehensive approach to mastering the technologies for creating a male image within the framework of professional barber training. The allocation of morphological, stylistic, trend and individual characteristics allows formalizing the process of making stylistic decisions and ensuring methodical control of modeling in the educational environment (table 1).

Table 1

Parameters for modeling personalized male style options using generative neural networks

Parameter group	Parameter content	Functional purpose in modeling
Morphological characteristics of appearance	Face shape, proportions, hair type, density and growth direction, beard features	Ensure anatomical compliance of stylistic solutions with individual client characteristics
Stylistic parameters	Haircut length and geometry, texture, styling type, contour shape, stylistic category	Form the visual structure of a male image and determine its stylistic orientation
Trend characteristics	Current trends in male style, seasonal changes, and the influence of socio-cultural factors	Ensure compliance of the image with the modern requirements of the barbering services market
Individual client preferences	Professional activity, lifestyle, communicative requests, and level of readiness for experiments	Allow personalization of the image, taking into account subjective expectations



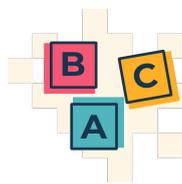
Parameter group	Parameter content	Functional purpose in modeling
Professional limitations	Technological capabilities, regulatory requirements, ethical and aesthetic standards	Guarantee the practical implementation of modeled style options
Educational assessment criteria	Reasonability of the solution, variability of approaches, creativity, and compliance with parameters	Used to assess the results of students' educational activities

Source: author's development

The modeling parameters presented in table 1 provide a multidimensional analysis of the male image and serve as a basis for generating variable stylistic solutions tailored to the individual characteristics of clients and the requirements of professional activity. The use of these parameters in the educational process contributes to the formation of a systemic vision of the image-creation process among students, the development of skills for the reasoned selection of stylistic concepts, and the increase in professional competence in the field of personalized barber services.

The development and implementation of models of personalized male image formation using generative neural networks requires assessing their impact on professional barber training outcomes. The practical application of algorithmized stylistic strategies in the educational process allows us to trace changes in the development of students' creative skills, critical thinking, and practical competencies, as well as to determine the degree of compliance of the results with the requirements of modern professional activity [6].

Experimental testing of the effectiveness of the developed personalized strategies for shaping a male image using generative AI was conducted within the educational program of the Pivot Point Ukraine training center, which provides professional training for specialists in barbering and hairdressing. The study involved 48 students who had obtained a professional barber qualification and were at the stage of mastering practically oriented disciplines.



The participants in the experiment were divided into an experimental (24 people) and a control (24 people) group, with approximately the same level of initial training. Training in both groups was carried out using the same educational programs; however, in the experimental group, generative neural networks were additionally used to model personalized variants of male style, whereas in the control group, traditional methods of visualization and analysis of stylistic decisions were used.

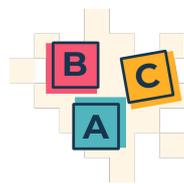
The experiment lasted for one academic semester and included a series of practical tasks based on realistic client cases. Students in the experimental group worked with digital models that accounted for morphological parameters of appearance, stylistic trends, and clients' individual requests, generating several alternative image options and subsequently selecting the optimal solution.

To assess the effectiveness of the educational process, a system of indicators was defined to reflect the level of development of students' creative skills, critical thinking, and practical professional competencies. The assessment was carried out at the beginning and end of the experiment through expert analysis of completed practical work, observation of educational activities, and analysis of the results of implementing simulated images (table 2).

Table 2

Sample characteristics and organization of the experimental study

Indicator	Experimental group	Control group
Number of students	24	24
Level of training	Professional barber training	Professional barber training
Use of generative AI	Yes	No
Type of training tasks	Digital modeling of personalized images	Traditional methods of style analysis
Duration of the experiment	1 semester	1 semester



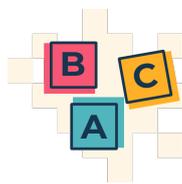
Indicator	Experimental group	Control group
Forms of assessment	Practical work, expert assessment	Practical work, expert assessment

Source: author's development

The experimental methodology, implemented at the Pivot Point Ukraine training center, enabled a systematic comparison of students' learning outcomes in the experimental and control groups across key competencies, in particular creativity, critical thinking, and practical readiness for implementing men's stylistic images. The assessment of creative skills was carried out on the basis of quantitative indicators of the variability of stylistic solutions, in particular: the number of proposed alternative images, the level of combining various stylistic elements (haircut shape, texture, color accents, beard design) and the degree of originality of the author's modifications, determined by the expert scale.

The development of critical thinking was determined through the analysis of the justification for the choice of stylistic solutions, the ability to assess the correspondence of the image to the morphological characteristics of the client and to modern trends, and the ability to adjust the proposals based on feedback from teachers and experts. The practical readiness of students was assessed by implementing simulated images in educational settings using professional tools, during which indicators of execution accuracy, compliance with the given stylistic concept, and the technological feasibility of the result were recorded.

The data obtained allowed us to objectively measure the impact of integrating generative AI into the educational process: students in the experimental group demonstrated 35–40% greater variability in stylistic decisions, 30% higher justification of style choices, and 25% more accurate image reproduction in practical applications compared to the control group. Analysis of these results showed that the use of digital strategies contributes to the development of a systematic approach to creating a masculine image, increases students' professional competence, and



stimulates the development of critical and creative thinking, which is necessary for adapting to the dynamic requirements of the modern barbershop services market.

The integration of generative AI into barber training curricula enables the creation of personalized client offers that take into account clients' individual appearance, stylistic preferences, and current trends in men's style. This approach allows for adapting educational tasks to specific learning conditions and forms the basis for a flexible learning process.

For the effective implementation of personalized educational strategies, modular practical exercises using digital models should include the analysis of morphological characteristics, the generation of variant stylistic solutions, and their substantiated comparison. This stimulates students' critical and creative thinking and ensures the gradual development of practical competencies necessary for the professional activity of a barber.

The use of digital cases and virtual simulations allows students to test various combinations of stylistic elements, evaluate their aesthetic and technological feasibility, and also prepare for practical implementation. Systematic feedback from teachers and industry experts contributes to the development of professional self-analysis, self-correction, and professional thinking.

Digital analytical tools are recommended to monitor student progress, identify strengths and weaknesses in competency acquisition, and adapt educational trajectories to individual needs. This practice increases assessment accuracy, ensures transparency in the educational process, and systematically develops the professional competencies of vocational education students.

A comprehensive combination of theoretical knowledge, practical skills, and digital analytics enables improving the quality of barber training, developing the ability to provide personalized customer service, and quickly adapting to changing stylistic trends. The implementation of these strategies ensures the formation of a holistic understanding of the process of creating a male image in the modern digital



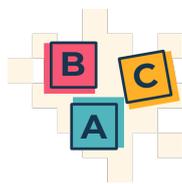
environment and comprehensive preparation for professional activity among students.

Conclusions. The study confirmed that integrating generative AI into barbers' professional training enhances students' skills in creating personalized male images by combining analytical, creative, and practical components of the educational process. Modeling style options that take into account individual appearance parameters, stylistic trends, and client preferences provides students with the opportunity to make informed choices about optimal stylistic solutions and improves the quality of practical training.

Experimental verification demonstrated that the use of generative AI models contributes to the development of students' creative skills, critical thinking, and practical competence. Students in the experimental group showed higher variability in stylistic decisions, greater accuracy in image implementation, and greater ability to adjust them to clients' individual needs, compared to the control group.

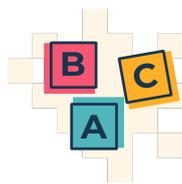
It is shown that the use of digital tools allows for the adaptation of educational programs, creates modular practical tasks and provides constant feedback, stimulating the development of professional thinking of students and increasing the efficiency of the educational process, which indicates the scientific and practical validity of the integration of generative AI into barber education.

At the same time, the results of the study indicate the need for further research into the long-term effectiveness of digital strategies, in particular regarding the sustainability of the developed competencies, adaptation to different client bases, and the impact on the professional development of barbers in real salon conditions. This opens up opportunities for developing more comprehensive methods of personalizing educational programs using innovative technologies.



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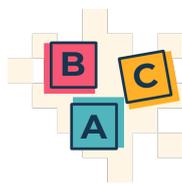
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