# Effect of Blended Learning on the Artistic Competence in Art Institutions of Ukraine

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**Abstract**

Art education in Ukraine is currently facing challenges related to limited access to educational resources and disruptions to traditional learning formats. Therefore, the development of effective approaches to supporting students' artistic competence has become increasingly important.The study aimed to determine the efficiency of blended education in the formation of artistic competence of students in higher artistic educational institutions in Ukraine. The study involved 50 students, divided into control and experimental groups (25 people each). The study used mixed methods and was quasi-experimental research design. Purposive sampling was used. Pre-Test, Post-Test, creative project, expert assessments, and questionnaires were used. Quantitative data were processed using descriptive statistics, t-tests for independent samples, and analysis of dynamics (Δ). The results showed that in the experimental group, after the application of mixed learning, the level of theoretical knowledge and technical skills increased. Students in the experimental group achieved higher results in key components of artistic competence: theoretical knowledge, technical skills, creative innovation, and reflexivity. In particular, the total artistic competence index in this group increased by an average of 13.8 points, while in the control group it increased by only 6.3 points. All differences were statistically significant ($p < 0.001$). The conclusions indicate that there is effectiveness of blended learning in art education, however, even in the conditions of modern challenges. Specific practical recommendations and directions for further research are proposed, considering the identified limitations.

**Keywords:** art education, performance art, economic evaluation of the creative process, management skills in performing arts, investment attractiveness of works of art, creative skills

## 1. Introduction

### *1.1 Introduce the Problem*

In the system of current transformations in the educational space of Ukraine, the issue of transforming artistic competence has become particularly relevant. The European Reference Framework on Key Competences for Lifelong Learning (European Commission, 2018) defines cultural awareness and expression competence (which includes artistic competence) as the ability "to appreciate the importance of the creative expression of ideas, experiences and emotions in a range of media, including music, performance art, literature, and the visual arts (European Commission, 2018). In the new conditions of digital learning, artistic competence acts as an integral ability of a creative artist to perceive, interpret, create, and evaluate works of art based on the aesthetic principles of awareness, creative thinking, and artistic self-expression skills. Moreover, the Ukrainian art school has traditionally combined academic training with intensive studio training. The curricula provided for a thorough mastery of classical artistic disciplines (drawing, painting, composition, sculpture) in combination with theoretical courses in art history and cultural studies. Classes are mostly held in small groups, which allows for constant individual support of

students and the opportunity to develop technical skills under the guidance of a teacher. At the same time, in recent years, the system has faced a number of challenges: limited material resources, outdated infrastructure, unequal access to educational materials, and periodic transitions to distance or blended learning formats. Under these conditions, the need for new models of training is growing. Blended learning (BL), which combines traditional face-to-face learning with digital educational technologies, has become a vital component of arts education, especially in the context of the global challenges of recent years (Ursu et al., 2024). In particular, the COVID-19 pandemic and higher education reforms in Ukraine have forced a rethinking of tactics for the organization of the didactic process, creating the conditions for the integration of flexible and technologically sound forms of learning (Tolmach et al., 2022). In this context, there is a need to consider new approaches to the formation of artistic competence, specifically in the context of BL.

The development of artistic competence in the context of the active use of BL is one of the tangible problems for contemporary art education, as it combines the pedagogical aspects of training future artists with social, technological, and art aspects (González-Zamar et al., 2020; Kalyniuk et al., 2024). In fact, modern artistic competence is not only the ability of students to create artistic images and master the necessary techniques, but also a developed system of aesthetic guidelines, reflection, and cultural thinking, as well as opportunities for interdisciplinary integration (Tsoulis & Panagiotidis, 2023).

In this study, artistic competence is considered as an important quality of a person, which combines knowledge, artistic skills, innovative potential and reflective ability. This approach is based on modern approaches to the formation of competencies, in particular in the documents of CEDEFOP (European Centre for the Development of Vocational Training), OECD (Organization for Economic Cooperation and Development) (OECD, 2018). Accordingly, artistic competence was structured according to the following components: cognitive (understanding the basics of history of the performance art, artistic styles, terminology); functional (mastery of artistic techniques), innovative (ability to artistic experiment, create original solutions; reflective (ability to self-analysis, understand one's own creativity). This model is consonant with modern approaches to the formation of learning outcomes, which include knowledge (know), skills (know-how), autonomy and responsibility. For the modern art space with its ideas of dynamism, intercultural interaction, and intensive use of digital technologies, it is artistic competence that has served as a tool for ensuring the competitiveness of graduates of art institutions at both the national and international cultural levels. At the same time, in the system of the pandemic and open Russian aggression, the use of BL has become not just a temporary alternative, but also a promising model for organizing the educational process, capable of ensuring flexibility, accessibility, and sustainability. Accordingly, studying the problem of forming artistic competence in the context of BL becomes important not only in a theoretical but also in a practical sense. Its consideration would make it possible to characterize modern methodological guidelines that would improve the quality of art education and subsidize to the successful adaptation of students to the modern requirements of the cultural space.

### *1.2 Literature Review*

The issues raised in the study attracted the attention of researchers. First, researchers analyzed the innovativeness and challenges of using BL, including in arts education. Haruna et al. (2022) proved that blended learning in the crisis is popular among students, who generally recognize the effectiveness of learning theoretical material during online classes. Singh et al. (2021) considered BL as a promising tool for organizing the educational process in the future. Osadcha et al. (2022) traced the Ukrainian realities of using BL in education and proposed their own working model, some elements of which may be useful in organizing the work of art education institutions. Nedermeijer (2023), on the other hand, highlighted the methodological features of developing educational courses for hybrid learning, noting the existence of problems in using this mechanism. Madieva et al. (2024) also identified difficulties in the use of BL, which, although it has potential for development, is, in the authors' opinion, inferior to the traditional model of learning with the active use of digital resources. It is important to headlight international practices. The University of the Arts London has successfully implemented BL in its graphic design programs by integrating Adobe Creative Cloud with traditional studio classes. Another example is the use of the Art Steps platform at the National Academy of Arts of Ukraine to organize virtual exhibitions of student work, allowing students to present their creative achievements in a digital format. The Moodle platform is also used at the I. K. Karpenko-Kary Kyiv National University of Theater, Cinema, and Television and distance learning methods in choreography education based on Zoom at the Choreography Art College “Serge Lifar Kyiv Municipal Academy of Dance”. Thus, there are differences among scholars in the use of BL, which is due to the innovative nature of this tool, for Ukrainian higner arts education.

On the other hand, scientists have also identified certain innovative strategies for using hybrid learning. In particular, Chervinska et al. (2023) analyzed mixed learning as a means of organizing the didactic process in higher education art institutions, pointing to its high adaptability to the conditions of training highly qualified specialists. Lanig & Kühne (2019) noted that BL is well suited for organizing studios for artists and designers in virtual space. Lavrentieva et al. (2023) identified specific aspects of the application of innovative mechanisms in the organization of art education. Tereshko (2023) studied the organization of didactic practice for students of art spheres using distance and blended learning. The attention of Ukrainian researchers to this issue can be explained by the conditions of Russian military aggression, which forced many arts educational institutions to adapt to extreme working conditions.

The goal of implementing BL is to ensure flexibility, accessibility, and individualization of the educational process for students of art majors. The structure of hybrid learning includes the integration of traditional teaching methods, with the use of digital platforms for theoretical learning and communication. Nedermeijer (2023) emphasizes the need for a clear division between synchronous and asynchronous learning components.

In foreign publications, experiments with the use of BL in art education demonstrate its effectiveness in several key aspects. For example, studies by Lanig & Kühne (2019) show a high level of adaptability of blended learning to the specific needs of designers and artists, especially in studio work. Semigina (2022) note that the use of digital platforms contributes to the formation of aesthetic skills through individual creative tasks.

Despite the considerable attention paid by contemporary scholars to the issue of professional training for future artists, the evolution of artistic competence in BL remains an under-researched topic. There is a clear lack of comprehensive studies aimed at analyzing the effectiveness of the process of integrating digital tools into art education, with a mandatory reference to specific artistic thinking, the formation of aesthetic experience, and the use of individual trajectories for the creative training of students. In this system, the proposed study aims to fill the existing scientific gap through the following theoretical justification and empirical verification of a model for the formation of artistic competencies in the context of the further use of BL in higher art educational institutions in Ukraine. The scientific novelty of the work lies in the development of separate innovative approaches to the further formation of artistic competence, which would be based on the combination of proven traditional artistic methods and modern digital educational technologies that would meet the requirements of the system of higher artistic education in Ukraine, which is being transformed because of reforms.

### *1.3 The Purpose of the Research*

The aim of the study is to determine the effectiveness of blended learning for the formation of artistic competence in students of higher art educational institutions in Ukraine. To achieve this aim, both research questions and hypotheses are formulated.

1. How does BL effect the level of artistic competence of students compared to traditional learning?

2. What are the main components of artistic competence that can be developed through BL?

3. What difficulties and advantages do students and teachers note in the process of BL?

Null Hypotheses ($H_0$):

**$H_{01}$**. There is no significant effect of blended learning on the level of artistic competence of students.

**$H_{02}$**. There is no significant difference in the development of specific components of artistic competence (e.g., creativity, technical skill, reflective thinking) between students engaged in blended learning and those receiving traditional instruction.

The unique contribution of this study lies in its systematic exploration of how blended learning environments specifically influence the development of artistic competence in Ukrainian higher art educational institutions – an area that remains under-researched both nationally and internationally.

## 2. Method

### *2.1 Research Design*

This study used a quasi-experimental pre- and post-testing design with mixed methods to examine the impact of interdisciplinary methods on audience perception and the construction of artistic images in contemporary performance art. This type of study made it possible to conduct a comprehensive comparison of results under two conditions: the experimental group studied in a mixed learning environment, while the control group studied in a

traditional environment. The chosen design is most appropriate for educational research in which complete randomization of participants is difficult or impractical for ethical and organizational reasons (Hyeon & Oh, 2025). The quasi-experimental approach allows for comparability of groups according to key criteria while maintaining the practical significance of the learning conditions.

In addition, the choice of this research design is explained by the need for empirical verification of the impact of blended education on the formation of artistic competence in students of higher art educational institutions. BL, as a modern pedagogical model, makes it possible to synthesize technologies with the traditional learning process, which, according to the research hypothesis, has the potential to significantly increase the effectiveness of artistic training. At the same time, the control group serves as a benchmark that influences the assessment of the advantages and challenges of the innovative approach.

The research methodology is based on several methods: quantitative (testing, statistical analysis) and qualitative (questionnaires). The use of such methods will influence the analysis of the effectiveness of educational strategies.

*2.2 Sample and Participants*

The study employed a purposive sampling method to ensure the relevance and comparability of participants. All students were enrolled in programs related to theater art, scenography, choreography, or cultural and theatrical management and met the following criteria: completion of at least two semesters of core subjects, above-average academic performance (GPA ≥ 3.0), and motivation to participate.

Participants were drawn from two Ukrainian professional higher art educational institutions: the Choreography Art College "Serge Lifar Kyiv Municipal Academy of Dance"; the Faculty of Theater Arts, I. K. Karpenko-Kary Kyiv National University of Theater, Cinema, and Television. These institutions specialize in artistic education, ensuring thematic alignment with the study. A total of 50 students (2nd–3rd year) were divided into: experimental group (n = 25) – blended learning; control group (n = 25) – traditional face-to-face learning.

Group stratification ensured approximate balance in gender, age (18–21), academic level, and institutional background.

Additionally, 10 instructors were surveyed to gain insight into the practical implementation of blended learning and to identify perceived advantages and challenges.

*2.3 Procedure*

The research was conducted in three stages. The first stage involved pre-experimental testing, the main stage consisted of 10 weeks of training, and the post-experimental stage involved determining and evaluating the results.

The pre-experimental stage involved testing the students' level of artistic competence. This testing involved assessing components such as knowledge of artistic terms, understanding of stylistic trends, creative skills, theoretical knowledge, and the ability to creatively interpret tasks. In addition to the tests, students presented their creative projects, which were evaluated by experts on a single scale.

The main stage involved the introduction of BL in the experimental group. The learning process lasted a total of 10 weeks and included various disciplines. In particular, the following training modules were selected, which are taught at the specified institutions and are directly related to the development of creative thinking and analytical skills:

1. Historical and theoretical block: "History of Theater and Scenography"; "History of Choreographic Art"; "Theoretical Foundations of Culture and Art Economics."

2. Management and law in art. "Management in the performing arts: history, theory, practice"; "Fundamentals of performing arts management"; "Management in the field of culture and art."

3. Practical and organizational block. "Technology of working with investors in the creation of a creative project." "Analysis of the production and financial activities of the theater." "Organization of touring activities for creative production projects."

The blended learning format included a combination of face-to-face classes (3 times a week) and an online component. Online classes were held on days when there were no face-to-face classes. These were mainly lectures rather than practical classes. This format was implemented using the Moodle and Zoom platforms. The online environment was used to host training materials, interactive tasks, video lectures, as well as for feedback and discussions. However, the control group studied according to the traditional model. This group had face-to-face classes within the standard curriculum using printed materials and demonstrations.

The post-experimental stage consisted of retesting, like the initial testing. This made it possible to measure changes

in levels of artistic competence. In addition, students were surveyed about their experience of participating in the training, and a similar survey was conducted with teachers from both groups to identify qualitative changes in the learning process and attitudes toward BL.

*2.4 Intervention Plan*

The intervention was structured into three main phases: pre-experimental testing, implementation of the blended learning (BL) model, and post-experimental evaluation. A detailed description of each phase, including duration, content, learning formats, and assessment methods, is provided below.

Pre-experimental phase (week 0)

The goal of this phase was to determine the initial level of artistic competence of the students.

The main activities involved conducting testing, which included determining the following components:

- knowledge of artistic terminology;
- development of creative skills;
- formation of theoretical knowledge;
- ability to creatively interpret the task.

The participants were students from both the experimental and control groups.

The main phase involved the implementation of blended learning (weeks 1–10) The experimental group studied according to the blended model The control group studied according to the traditional model

Format for the experimental group: Face-to-face classes: 3 times a week. Online classes: on days without face-to-face classes (2 times a week) Platforms: Moodle and Zoom

Main resources: video lectures, interactive tasks, texts, and discussion forums

The training modules (interdisciplinary content) consisted of a historical and theoretical block, management and law in performance art. In addition, there was a practical and organizational block: technology of working with investors in creative projects, analysis of the production and financial activities of the theater, etc. The monitoring process involved weekly tracking of student participation, timeliness of task completion

Post-experimental stage (11 weeks)

This stage was aimed at determining the impact of the intervention on the level of artistic competence and perception of the educational process. At this stage, re-testing, re-expert assessment and survey of students were carried out. The intervention ensured the implementation of a comparison between the two groups and allowed for an assessment of both groups.

*2.5 Assessment Tools*

A comprehensive approach was used to assess student performance, including:

1. Tests in art history, performance art and management, which were developed based on current art discipline curricula.

2. Students' creative projects, which were evaluated on a 5-point scale with responses ranging from 1 – strongly disagree to 5 – strongly agree according to criteria of technical skill, innovation, artistic expression, and relevance to the task. The evaluation was carried out by three independent experts.

3. Expert evaluation of practical work took place at the final stage, with each piece of work undergoing blind evaluation.

4. Student self-assessment, which included a 10-question questionnaire on a Likert scale (1 – strongly disagree to 5 – strongly agree). This made it possible to identify the appropriate level of awareness of their own progress and satisfaction with the learning process.

In general, attention was paid to components such as theoretical knowledge, technical skills, innovation, and reflectivity (see Table 1).

**Table 1.** Assessment Indicators

| Indicator | Operational Definition |
|---|---|
| Theoretical knowledge | Demonstrated understanding of key concepts in performance art history, measured through standardized tests assessing factual knowledge, chronological awareness, and comprehension of artistic styles and techniques. |
| Technical mastery | Quality and accuracy of executing practical artistic tasks (creative projects, sketches, compositions). |
| Creative innovation | Degree of originality, novelty, and creative risk-taking in students' artistic works, operationalized through expert evaluation. |
| Reflexivity and self-awareness | Ability to critically analyze one's artistic process, assess strengths and weaknesses, measured through structured reflective questionnaires and expert review of reflective essays. |

The specified set of tools made it possible to record both quantitative and qualitative changes in the development of artistic competence.In addition, the choice of such indicators made it possible to trace the results of improving artistic skills in selected participants of the experiment. To ensure the validity of the instrument, the following measures were taken:

Content validity was checked with the participation of experts: five teachers of art institutions of higher education independently assessed the compliance of the criteria with the concept of artistic competence.

External validity was checked during a pilot study with the participation of 12 students, who confirmed the clarity of the formulations and the adequacy of the assessment scale with respect to the proposed tasks.

A 5-point Likert scale was used for assessment, where: 1 - completely disagree, and 5 - completely agree.

Analysis and evaluation of creative projects was carried out by independent experts. Technical skills were assessed using the presented creative project.

The selected indicators made it possible to indicate the dynamics of improving artistic skills in individual participants of the experiment and identify qualitative changes in the structure of their artistic competence.

*2.6 Data Analysis*

Because descriptive statistical methods were used to calculate the mean values, median, and standard deviation for each group's indicators before and after the experiment, quantitative data processing was put into practice. The paired sample t. test was performed to determine whether the differences between the experimental and control groups' results were statistically significant. Significant disparities between the mean values of the two samples could be found using this strategy. Furthermore, a theoretical analysis was conducted on the questionnaire and interview outcomes. This allowed for the identification of the participants' overall attitudes and suggestions regarding blended learning. The responses were first categorized and interpreted before the analysis was done by hand.

Thus, combining quantitative and qualitative methods made it possible to assess the effectiveness of BL to form artistic competence in students. This combination also provided an opportunity to obtain valuable feedback on the potential and challenges of this educational model.

*2.7 Ethical Considerations*

The ethical guidelines for research involving human subjects were followed in the conduct of this study. Clear and thorough information regarding the objectives, procedures, and techniques of the study was given to everyone who took part in surveys, interviews, or observational activities. It was completely voluntary to participate.

Informed consent was obtained from all participants prior to data collection. They were explicitly informed of their right to refuse to participate or to withdraw from the study at any time without any negative consequences.

## 3. Results

Finding out how BL affected students' growth in artistic competency at art higher education institutions was one of the primary goals of this study. The study was conducted using a quasi-experimental methodology, dividing participants into two groups of 25 students each: experimental (BL) and control (conventional learning), to guarantee the validity of the findings. Theoretical understanding, technical proficiency, creative invention, and reflexivity were

all regarded as components of artistic competence, which is an integrative personality trait. Changes in each of these elements – testing, portfolios, expert blind evaluation of papers, and student self-assessment on a Likert scale – were measured using a mix of quantitative and qualitative assessment techniques. The data analysis revealed a clear positive dynamic in the experimental group, which studied according to the mixed model. All four components of artistic competence demonstrated a statistically significant improvement after the end of the experiment. The level of theoretical knowledge acquisition was assessed using a standardized test on art history, performative art, theater, scenography, and management. The mean score of the control group increased from 73.1 ± 7.2 to 78.6 ± 6.9, while that of the experimental group increased from 72.4 ± 6.8 to 84.7 ± 5.4 ($p < 0.01$) (see Tables 2–5). This indicates the effectiveness of multimedia tools and access to educational materials at any convenient time, which is an advantage of the mixed format.

**Table 2.** Paired T-Test: Comparison before and after the Experiment in the Experimental Group (n=25)

| Indicator | Before experiment) (M ± SD) | After experiment (M ± SD) | Change (Δ) | t (24) | p-value |
|---|---|---|---|---|---|
| Theoretical knowledge (points) | 72.4 ± 6.8 | 84.7 ± 5.4 | +12.3 | 5.96 | < 0.001 |

**Table 3.** Paired T-Test: Comparison before and after the Experiment in the Control Group (n=25)

| Indicator | Before experiment) (M ± SD) | After experiment (M ± SD) | Change (Δ) | t (24) | p-value |
|---|---|---|---|---|---|
| Theoretical knowledge (points) | 73.1 ± 7.2 | 78.6 ± 6.9 | +5.5 | 3.89 | < 0.01 |

**Table 4.** Independent T-Test: Comparison of Experimental and Control Groups before the Experiment

| Indicator | Experimental (M ± SD) | Control (M ± SD) | t (48) | p-value |
|---|---|---|---|---|
| Theoretical knowledge (points) | 72.4 ± 6.8 | 73.1 ± 7.2 | -0.35 | > 0.05 |

**Table 5.** Independent T-Test: Comparison of Experimental and Control Groups after the Experiment

| Indicator | Experimental (M ± SD) | Control (M ± SD) | t (48) | p-value |
|---|---|---|---|---|
| Theoretical knowledge (points) | 84.7 ± 5.4 | 78.6 ± 6.9 | 5.96 | < 0.001 |

Technical skills, assessed using a creative project (blind assessment by three experts), showed a significant increase in the experimental group (from 68.5 to 81.4; $p < 0.01$), while in the control group – from 69.0 to 75.0. This should be explained by the possibility of watching video instructions, receiving feedback through online platforms, which allowed students to improve the quality of practical tasks. Such indicators of creativity as originality and the ability to think creatively and take an original approach were assessed through special creative tasks, the analysis of which was also carried out by experts. The experimental group showed an increase from 66.2 to 80.5 points ($p < 0.01$), in the control group the changes were less pronounced (from 65.8 to 72.3). This may be due to the expanded possibilities of experimentation in the digital environment, a freer mode of working on tasks and access to digital resources. Reflexivity, in particular, the level of awareness of one's own progress and the ability to self-analyze was determined by the results of the student questionnaire. In the experimental group, the indicator increased from 62.8 to 78.6 ($p < 0.001$), in the control group – from 63.3 to 70.5. The experience of independent work, digital assessment, as well as constant online communication with teachers contributed to the increase in students' independence and internal motivation. At the same time, correlation analysis made it possible to indicate the presence of a positive correlation between the level of reflexivity and the overall quality of the work performed ($r = 0.62$, $p < 0.01$). This confirms that the development of self-awareness directly affects artistic productivity, and BL creates more favorable conditions for this (See Table 6).

**Table 6.** Comparative Results of Artistic Competence

| Competency Component | Group | Before the experiment (M ± SD) | After the experiment (M ± SD) | Δ Change | t(24) | P |
|---|---|---|---|---|---|---|
| Theoretical Knowledge | Experimental group | 72.4 ± 6.8 | 84.7 ± 5.4 | +12.3 | 5.96 | < 0.001 |
| | Control group | 73.1 ± 7.2 | 78.6 ± 6.9 | +5.5 | 3.89 | < 0.001 |
| Technical Proficiency | Experimental group | 68.5 ± 7.5 | 81.4 ± 6.2 | +12.9 | 6.22 | < 0.001 |
| | Control group | 69.0 ± 7.1 | 75.0 ± 6.5 | +6.0 | 4.40 | < 0.001 |
| Creative Innovation | Experimental group | 66.2 ± 8.0 | 80.5 ± 6.8 | +14.3 | 6.91 | < 0.001 |
| | Control group | 65.8 ± 7.6 | 72.3 ± 7.0 | +6.5 | 4.44 | < 0.001 |
| Reflexivity / Self-Assessment | Experimental group | 62.8 ± 7.9 | 78.6 ± 6.0 | +15.8 | 7.43 | < 0.001 |
| | Control group | 63.3 ± 7.4 | 70.5 ± 6.9 | +7.2 | 5.03 | < 0.001 |
| Total Competency Score | Experimental group | 67.5 ± 5.6 | 81.3 ± 4.9 | +13.8 | 7.81 | < 0.001 |
| | Control group | 67.8 ± 5.9 | 74.1 ± 5.3 | +6.3 | 5.59 | < 0.001 |

Note. Δ — average increase in the indicator; t(24) — t-criterion value for paired t-test (n = 25, degrees of freedom = 24); p < 0.001 — all changes are statistically significant.

BL, as a didactic model that combines old-style face-to-face learning with an online format has opened opportunities for flexible learning, but it also comes with certain challenges. To objectively evaluate the experience of the experiment participants, questionnaires and interviews were conducted among students in both groups – the experimental group (with blended learning) and the control group (traditional learning). Accordingly, it was found that the adaptability of the learning schedule is a significant advantage. In particular, students pointed to the ability to study at a convenient time and place as one of the key advantages. Online access to lectures, teaching materials, and recordings allows students to review complex topics, which is especially important for artistic disciplines where a deep understanding of theory and technique is essential. Another significant advantage was increased motivation. In particular, interactive platforms and a variety of forms of presenting material (video lessons, online tests, forums) influenced the development of self-control and responsibility for one's own learning. Students' self-assessment in questionnaires showed a higher level of approval with the learning process. The increased role of feedback is also noticeable. As a result of using digital platforms, teachers were able to quickly comment on work, send recommendations, and conduct online consultations. Another significant advantage was the expansion of the educational base, as the modern online environment provides access to a large number of additional materials, including videos, installations, photos, lectures by famous theater scholars, theater managers, etc. Table 7 shows the main advantages obtained from the Likert scale.

**Table 7.** Advantages of Blended Learning: Average Scores (M ± SD)

| Advantages of blended learning | Students (n=50) | Teachers (n=10) |
|---|---|---|
| Flexibility in learning | 4,68 ± 0,52 | 4,80 ± 0,42 |
| Increased motivation and engagement | 4,30 ± 0,65 | 4,50 ± 0,52 |
| Prompt and high-quality feedback | 4,44 ± 0,60 | 4,60 ± 0,52 |
| Availability of a vast array of educational resources | 4,38 ± 0,70 | 4,20 ± 0,63 |
| Development of independent learning skills | 4,20 ± 0,75 | 4,30 ± 0,67 |

However, the blended learning format also had its challenges. One of the main obstacles for both students and teachers was an unstable internet connection and an insufficient level of digital literacy. In some cases, this led to missed lectures, difficulty accessing materials, or incomplete assignments.

Technical difficulties

As one student noted, *"Sometimes I couldn't join Zoom classes because of poor internet, and I had to catch up on my own."* Similarly, a teacher commented, *"I had to spend hours figuring out how to upload materials properly and ensure every student could access them."*

Live communication restrictions

Some teachers and students also pointed out that the online format limits live communication and the emotional exchange that is especially vital in arts education. One participant remarked, *"It's hard to express creativity when there's a screen between you and your group."*

Motivational problems and Increased workload for teachers

Despite the overall positive effect, some students felt a lack of incentive for independent work in the online part. Teachers, in turn, had to significantly adapt their programs and prepare supplementary materials for digital use, increasing their workload Table 8 lists the main disadvantages of the BL (See Table 8).

**Table 8.** The Main Problems of Artistic Competence Formation: Qualitative Analysis

| Thema | Subthemes | Examples of research quotes |
|---|---|---|
| Technical difficulties | Unstable internet connection<br>Insufficient level of digital literacy | "Sometimes I couldn't join Zoom over the internet..."<br>"I spent hours downloading materials..." |
| Live communication restrictions | Lack of emotional exchange<br>Lack of real-time observation of group reactions<br>Lack of communication | "It's hard to express creativity when there's a screen between you and the group"<br>"There was a feeling of isolation because I couldn't see the reactions..." |
| Motivational problems | Insufficient stimulation for independent work in the online part | "Some students lacked motivation to work independently" |
| Increased workload for teachers | The need to adapt programs<br>Preparation of additional digital materials | "Preparing for each online class took twice as long." |

In general, teachers reported significantly greater difficulties related to technical problems and workload than students. This once again emphasizes the need for systematic support for teaching staff in blended learning. Preparing for online classes required more time and resources, which affected both teaching effectiveness and the psychological state of teachers. Without appropriate assistance and optimization of the educational process, the risk of professional burnout increases. Thus, the implementation of blended learning should be accompanied not only by technical, but also by methodological and emotional support for educators.

## 4. Discussion

Therefore, considering the research problem, determining the role of blended learning in the formation of artistic competence of students of higher art educational institutions, it is stated that the introduction of a blended learning model into the process of professional training of students of art institutions contributes to an increase in their artistic competence compared to the traditional form of education. Blended learning has become a kind of adaptive solution to ensure the continuity of the educational process. This model has allowed Ukrainian higher art educational institutions to keep a high level of student training, ensuring a balance between face-to-face classes where possible and distance learning formats that guarantee safety and flexibility. According to research by contemporary Ukrainian educators, blended learning has become not only an innovative methodology but also a tool for educational resilience in wartime (Tkach et al., 2025). This format has made it possible to quickly change the teaching format and adapt to new challenges (Bigné et al., 2019; Zheng, 2025). Based on this, BL positively influences the formation of artistic competence in students of higher art educational institutions in Ukraine. At the same time, it is worth agreeing with

the authors who analyzed practical examples of the implementation of blended learning in Ukrainian art institutions. In particular, many art academies and universities (for example, faculties of fine arts, design or decorative and applied arts) actively use combined forms of work: online lectures on art history and composition theory, which are combined with offline studio classes, master classes, and consultations in creative workshops. In several programs, teachers used digital platforms for preliminary demonstration of techniques (video lessons, step-by-step instructions, online galleries of student works), after which students performed practical tasks during face-to-face sessions. This model made it possible to preserve the quality of individual interaction and expand the possibilities of independent work and access to educational resources. The use of these examples demonstrates that blended learning is not an abstract concept, but is integrated into the practice of Ukrainian art institutions.

The findings of this research showed that there is an increase in the level of artistic competence of students who studied using the blended model compared to those who studied traditionally. This is confirmed by statistically significant improvements in the experimental group in terms of technical skill, creativity, compositional thinking, and the ability to independently analyze works of art. According to the results of a comparative examination, students in the experimental group who studied using a mixed learning model showed better results in all key components of competence after completing the course. The increase in theoretical knowledge was +12.3 points ($t(48) = 5.96$, $p < 0.001$), technical skills +12.9 points ($t(48) = 6.22$, $p < 0.001$), creative innovation increased by +14. 3 points ($t(48) = 6.91$, $p < 0.001$), reflectivity and self-esteem increased by +15.8 points ($t(48) = 7.43$, $p < 0.001$). Thus, the total competence score increased by +13.8 points ($t(48) = 7.81$, $p < 0.001$). These results are generally consistent with the findings of studies that have shown that BL affects the development of various skills, including critical thinking (Kuo & Tien, 2022). In addition, these and other studies show that blended learning is not just a necessary measure associated with quarantine and security measures under martial law but, above all, an important promising technology that has become part of the modern educational space (Yang, 2020; Pavlou & Eteokleous, 2023). According to the results of the study, both null hypotheses were rejected. In particular, $H_{01}$ (that there is no significant effect of blended learning on the level of artistic competence of students) was not confirmed, since a statistically significant increase in the overall level of competence was found in the experimental group compared to the control group ($t(48) = 7.81$, $p < 0.001$). $H_{02}$ (that there is no difference in the development of individual components of artistic competence between the groups) was also rejected, since the experimental group showed a significant improvement in all the studied components — technical skill, creativity, compositional and reflective thinking — compared to the control group ($p < 0.001$). Thus, the results of the study confirm the effectiveness of blended learning in improving both the overall level and individual components of artistic competence of students of art institutions.

This research also confirmed that BL influences the development of artistic competence factors such as technical skills, creativity, analytical skills, etc. As a result of constant access to video lessons and online resources, students were able to study material, reviewing materials at a convenient time and pace. In addition, as proven in other studies, modern online platforms and forums influence the implementation of high-quality exchange of ideas Mozgalova et al. (2021), inspiration, and the development of creative thinking (Prokopenko, 2023; Truba et al., 2025). Thus, these statements are generally consistent with studies that have shown that BL enables the development of skills (Wang, 2019) and the learning experience of students in the educational process (Yount & Tandoh, 2017; Zhyhailo et al., 2024). The study also identified both the advantages and difficulties of implementing BL. This was based on an analysis of student and teacher evaluations. Among the advantages noted were adaptability, access to resources, and improved feedback. This is confirmed by other studies that have pointed out the advantages of blended formats (Wang, 2023; Sandberg et al., 2022), as students in this format can study at a time and place convenient for them (Nørgård et al., 2022). As other studies have shown, teachers were able to provide timely comments and recommendations (Mitchell, 2018; Sandra et al., 2022). This had an overall impact on the rapid improvement of students' skills (Zhang, 2024).

However, despite these advantages, research also highlights the need to overcome challenges related to technical issues and lack of motivation among some students. These aspects are important to consider in order to further optimize blended learning and ensure its effectiveness in arts education.

Among the main difficulties are technical problems, insufficient personal communication or interaction, and an increased workload for teachers. Other studies also indicate that the lack of face-to-face communication can affect students' motivation and emotional state (Abidin et al., 2023). The studies also indicate that there is a greater workload for teachers in the hybrid learning format (Nortvig et al., 2020). In particular, the broader adaptation of teaching materials to the online format has become noticeable. This, in turn, requires additional time and effort on the part of teachers (Quarshie et al., 2022; Trutin, 2024). Overall, these findings were supported by research showing

that the implementation of blended learning influences several modifications in teachers' and students' self-determination and working styles.

Therefore, the hypothesis that the integration of a BL model into the professional training of students higher art educational institutions contributes to a significant increase in their artistic competence in comparison to the traditional form of education was confirmed by the analysis of the study's results with scientific sources. In addition to cultivating essential elements of artistic proficiency, BL also adjusts to the contemporary demands and obstacles faced by Ukrainian educators and students. Moreover, the flexibility inherent in the blended format allows for a more personalized educational process, taking into account different styles and paces of learning. Such adaptability is especially important in the context of the digital transformation of education, where access to online resources and the possibility of asynchronous learning are of key importance. Besides, the successful implementation of BL requires constant support for both teachers and students, taking into account the technical difficulties and motivational aspects of independent work. Overall, BL not only enhances artistic skills, but also prepares students to effectively operate in an increasingly digital and interconnected cultural environment.

Despite these results, there are some limitations to the study. In particular, the study was conducted on a relatively small number of students from only two higher art educational institutions. This limits the possibility of transferring the results to the entire art education system in Ukraine. In addition, the analysis was conducted over the course of one semester. This, in turn, does not allow for a qualitative assessment of the long-term effects of BL.

It should also be acknowledged that the learning took place in a war environment, which could have affected student motivation, internet access, mood, emotional stability, etc. Considering the above limitations, the conclusions remain valid but will require future confirmation in a broader educational context and other conditions.

## 5. Conclusions

The study examined how BL affects the development of artistic skills of students of Ukrainian higher art educational institutions. The development of creative skill is significantly influenced by BL, according to statistical findings, theoretical analysis, and qualitative data. The average scores for all examined indicators increased statistically significantly in the experimental group, which used the blended model for its study. Specifically, the overall artistic competence score rose by +13.8 points ($t(48) = 7.81$; $p < 0.001$), compared to +6.3 points in the control group.

The study found that all four components of artistic competence, namely theoretical knowledge, technical skill, creative innovation, and reflectivity, improved in the blended learning environment. The greatest increase was recorded in components directly related to autonomous and critical activity. Reflectivity increased by +15.8 points ($p < 0.001$), and creative innovation by +14.3 points ($p < 0.001$). These results showed that BL influenced the development of not only the cognitive but also the metacognitive sphere of students.

The study showed that most students (over 85%) had a positive opinion of the blended learning format. It was proven that adaptability, access to digital resources, and the availability of feedback are important advantages of the blended format. However, several difficulties were also identified technical problems, a decrease in interpersonal communication, and problems with independent activity.

Therefore, BL meaningfully improves artistic competence compared to traditional learning, with higher average score across all components. It is shown that theoretical knowledge, technical skill, creative innovation, and reflectivity all showed improvement, especially in creative innovation and reflectivity. Advantages include adaptability, access to digital resources, and feedback. Difficulties involve technical issues, reduced live interaction, and challenges with independent learning. Hence, the novelty of the study lies in the fact that for the first time in the context of higher art education in Ukraine, the impact of BL on the development of students' artistic competence has been systematically analyzed. For the first time, both the advantages (adaptability, access to digital resources, the possibility of feedback) and the main difficulties (technical problems, reduced interpersonal communication, problems with motivation for independent work) of the blended format in the field of art education have been systematized.

Based on these conclusions, it is possible to identify some practical recommendations for the effective implementation of blended learning in higher art education institutions in Ukraine.

1. The transition to a blended model should be gradual. This transition should begin with individual courses (primarily theoretical disciplines) and gradually expand to interdisciplinary and creative modules.

2. Professional administrative support should be provided. Institutional conditions should be created that are

acceptable to both teachers and students. This should be done in conjunction with the development of regulatory documents, schedules, digital policies, and regulations for interaction in virtual space.

3. To improve interaction with students, clear instructions should be provided for each online component of the course (videos, tests, assignments). This will reduce cognitive load and avoid confusion.

In addition, it is proposed to focus further research on:

1. Expanding the sample to include students from different artistic specialties (music, visual arts, design) from different regions of Ukraine.

2. Conducting a long-term assessment of the impact of BL over several academic years.

3. Conducting comparative studies of different blended learning models, such as fully asynchronous or blended flip.

**References**

Abidin, J., Hasibuan, E. A., & Harahap, M. (2023). The effect of online learning vs face-to-face learning on student learning motivation post the COVID-19 pandemic at schools and colleges. *Journal of Digital Learning and Distance Education, 1*(8), 329-337. https://doi.org/10.56778/jdlde.v1i8.76

Bigné, E., Badenes-Rocha, A., Ruiz, C., & Andreu, L. (2019). Development of a blended course for online teaching: Process and outcomes. *Journal of Management and Business Education*, *2*(2), 108-126. https://doi.org/10.35564/jmbe.2019.0010

Chervinska, I., Melnyk, N., & Galyuk, N. (2023). Blended learning as an innovative organization of the educational process in higher education institutions of Ukraine. *Journal of Vasyl Stefanyk Precarpathian National University, 10*(1), 216-224. https://doi.org/10.15330/jpnu.10.1.216-224

Edward, C. N., Asirvatham, D., & Johar, M. G. M. (2018). Effect of blended learning and learners' characteristics on students' competence: An empirical evidence in learning oriental music. *Education and Information Technologies*, *23*(6), 2587-2606. https://doi.org/10.1007/s10639-018-9732-4

European Commission (2018). Key competences for lifelong learning. Retrieved from https://op.europa.eu/en/publication-detail/-/publication/297a33c8-a1f3-11e9-9d01-01aa75ed71a1/language-en

González-Zamar, M.-D., Abad-Segura, E., Luque de la Rosa, A., & López-Meneses, E. (2020). Digital education and artistic-visual learning in flexible university environments: Research analysis. *Education Sciences*, *10*(11), 294. https://doi.org/10.3390/educsci10110294

Haruna, H. A., Kabara, M. Y., & Enriquez, A. (2022). Face-to-face, online, or hybrid learning in post COVID-19 recovery? Scrutinizing Nigerian students' Preferences. *Journal of Educational Management and Instruction (JEMIN)*, *2*(2), 63-74. https://doi.org/10.22515/jemin.v2i2.5026

Hyeon, R., & Oh, W.-O. (2025). Virtual reality education for preventing safety incidents in pediatric hospital settings: Quasi-experimental design pre-post-testing. *Journal of Pediatric Nursing*, *80*, 56-63. https://doi.org/10.1016/j.pedn.2024.11.005

Kalyniuk, N. M., Franchuk, V. V., Selskyy, P. R., Humenna, N. V., & Hladii, O. I. (2024). Blended form of education as an innovative approach in the training of medical students: The experience of Ukraine. *Educación Médica*, *25*(6), 100965. https://doi.org/10.1016/j.edumed.2024.100965

Kuo, T.-H., & Tien, H.-K. (2022). Enhancing the effects of creativity training for business school students through art-based methods and blended learning. *Education + Training*, *64*(5), 642-661. https://doi.org/10.1108/et-07-2021-0282

Lanig, A., & Kühne, B. (2019). Educating designers in virtual space: A description of hybrid studios. In N. Börekçi, D. Koçyıldırım, F. Korkut, & D. Jones (Eds.), *Insider knowledge, DRS Learn X Design Conference 2019, 9-12 July, Ankara, Turkey*. https://doi.org/10.21606/learnxdesign.2019.01079

Lavrentieva, N., Spolska, O., Korol, O., Markovskyi, A., & Tkachenko, V. (2023). Higher art education in the European Union: Innovative technologies. *Eduweb*, *17*(2), 234-243. https://doi.org/10.46502/issn.1856-7576/2023.17.02.20

Madieva, D., Kassimbekova, K., Saipov, A., Zholdasbekova, S., & Parmankulova, P. (2024). Problem-Based Learning: Integrating Web-Quest and Case Study Strategies in Students with Hearing Impairments. *International Journal of Innovation and Learning*, *1*(1), 441-455. https://doi.org/10.1504/ijil.2024.10053099

Mitchell, A. (2018). Seven steps to heaven: Time and tide in 21st-century contemporary music higher education. *Australian Journal of Teacher Education*, *43*(5), 60-77. https://doi.org/10.14221/ajte.2018v43n5.5

Mozgalova, N. G., Baranovska, I. G., Hlazunova, I. K., Mikhalishen, A. V., & Kazmirchuk, N. S. (2021). Methodological foundations of soft skills of musical art teachers in pedagogical institutions of higher education. *Linguistics and Culture Review*, *5*(S2), 317-327. https://doi.org/10.21744/lingcure.v5ns2.1355

Nedermeijer, J. (2023). Input from instructional sciences course development. In *Evidence-based blended and online learning* (pp. 187-189). BRILL. https://doi.org/10.1163/9789004681774_012

Nørgård, R. T., Schreibman, S., & Huang, M. P. (2022). Digital humanities and hybrid education: Higher education in, with and for the public. In *The Palgrave Handbook of Digital and Public Humanities* (pp. 11-29). Springer International Publishing. https://doi.org/10.1007/978-3-031-11886-9_2

Nortvig, A.-M., Petersen, A. K., Helsinghof, H., & Brænder, B. (2020). Digital expansions of physical learning spaces in practice-based subjects - blended learning in Art and Craft & Design in teacher education. *Computers & Education*, *159*(104020), 104020. https://doi.org/10.1016/j.compedu.2020.104020

OECD. (2018). *The future of education and skills Education 2030*. Retrieved from https://www.oecd.org/content/dam/oecd/en/publications/reports/2018/06/the-future-of-education-and-skills_5424dd26/54ac7020-en.pdf

Osadcha, K. P., Osadchyi, V. V., Kruglyk, V. S., Spirin, O. M., Krasheninnik, I. V., & Horbatiuk, R. M. (2022). Model of blended learning in higher educational institutions: Development, implementation and evaluation. *Information Technologies and Learning Tools, 91*(5), 158-169. https://doi.org/10.33407/itlt.v91i5.5045

Pavlou, V., & Eteokleous, N. (2023). Potential and challenges for online and blended learning in arts education; Implications for developing a transformative pedagogical framework. In *INTED2023 Proceedings: 17th International Technology, Education and Development Conference, 6-8 March 2023, Valencia, Spain* (pp. 4168-4173). IATED. https://doi.org/10.21125/inted.2023.1111

Prokopenko, O. (2023). Experience of implementing E-learning to support the educational process in EU countries during the COVID-19 pandemic: A bibliometric review. *E-Learning Innovations Journal*, *1*(1), 55-70. https://doi.org/10.57125/elij.2023.03.25.03

Quarshie, B., Amponsah, A., & Boakye-Ansah, D. (2022). Blended pedagogies: The challenges of Visual Arts education. *Journal of African History, Culture and Arts*, *2*(2), 94-103. https://doi.org/10.57040/jahca.v2i2.124

Sandberg, B., Stasewitsch, E., & Prümper, J. (2022). Skills development through virtual art-based learning: Learning outcomes of an advanced training program for project managers. *Education Sciences*, *12*(7), 455. https://doi.org/10.3390/educsci12070455

Sandra, Y., Syafei, S., Irwan, I., & Fitryona, N. (2022). The development of a clustering technique-based blended learning model: Preliminary study in the department of fine arts education. In *Exploring New Horizons and Challenges for Social Studies in a New Normal* (pp. 104-109). Routledge. https://doi.org/10.1201/9781003290865-20

Semigina, T. (2022). Teaching field social work: Views from Ukrainian academia. In R. Baikady et al. (Eds.), *The Routledge handbook of field work education in social work* (pp. 265-279). Routledge. Retrieved from https://www.taylorfrancis.com/chapters/edit/10.4324/9781032164946-22/teaching-field-social-work-tetyana-semigina

Singh, J., Steele, K., & Singh, L. (2021). Combining the best of online and face-to-face learning: Hybrid and blended learning approach for COVID-19, post vaccine, & post-pandemic world. *Journal of Educational Technology Systems*, *50*(2), 140-171. https://doi.org/10.1177/00472395211047865

Tereshko, I. (2023). Organization of pedagogical practice for students of art specialities in the conditions of distance learning. *Pedagogy and Education Management Review*, *2*(12) 14-20. https://doi.org/10.36690/2733-2039-2023-2-14-20

Tkach, M., Kozyr, A., Mymryk, M., Holubytska, N., & Khomych, I. (2025). Effectiveness of multimodal communicative practices in higher artistic education: An analysis of contemporary approaches. *Journal of Educational Technology Development and Exchange (JETDE), 18*(1), 240-260. https://doi.org/10.18785/jetde.1801.13

Tolmach, M., Chaikovska, O., Khrushch, S., Kotsiubivska, K., & Trach, Y. (2023). Organization of training in the art

education institution in the context of the COVID-19 pandemic. In *Proceedings of Seventh International Congress on Information and Communication Technology* (pp. 631-639). Springer Nature Singapore. https://doi.org/10.1007/978-981-19-2394-4_58

Truba, H., Sytko, O., Arapaki, M., Yelisieieva, S., & Podlisetska, O. (2025). Analysis of hybrid (blending) learning within the framework of educational discourse. *Journal of Education and Learning (EduLearn)*, *19*(3), 1492-1500. https://doi.org/10.11591/edulearn.v19i3.21758

Trutin, D. G. (2024). The Case of *Artist in Context* Seminar as an Example of Non-Formal Practice in Blended Art Education. In *Education Through the COVID-19 Pandemic* (pp. 132-145). University of Belgrade — Faculty of Education. https://doi.org/10.18485/uf_edu_covid19.2024.1.ch8

Tsoulis, V., & Panagiotidis, A. (2023). Professional development skills in online education. In *Digital competence in higher education: a European perspective* (pp. 20-40). Dykinson. https://doi.org/10.2307/jj.5076296.5

Ursu, N., Hutsul, I., Luts, S., Paur, I., & Takirov, T. (2024). Innovative technologies in teaching art disciplines in educational institutions. *Journal of Educational Technology Development and Exchange*, *17*(1), 239-255. https://doi.org/10.18785/jetde.1701.14

Wang, J. (2019). Application of blending learning based on network learning space in teaching design of Digital Art. *International Journal of Emerging Technologies in Learning (iJET)*, *14*(03), 177. https://doi.org/10.3991/ijet.v14i03.10107

Wang, Y. (2023). Vocal creativity: analyzing students song making processes in blended learning. *Interactive Learning Environments*, *32*(5), 2196-2206. https://doi.org/10.1080/10494820.2022.2141267

Yang, R. (2020). Artificial intelligence-based strategies for improving the teaching effect of art major courses in colleges. *International Journal of Emerging Technologies in Learning (iJET)*, *15*(22), 146. https://doi.org/10.3991/ijet.v15i22.18199

Yount, A., & Tandoh, K. (2017). Teaching and learning online. In *Blended learning* (pp. 1164-1189). IGI Global. https://doi.org/10.4018/978-1-5225-0783-3.ch058

Zhang, G. (2024). Ways of future music teachers' communicative competence forming. *Humanitarian Studies: History and Pedagogy*, *2*, 126-133. https://doi.org/10.35774/gsip2024.02.126

Zheng, S. (2025). Artificial Intelligence - Driven Design of Aesthetic Education Curricula in Higher Education. *Education Insights*, *2*(6), 247-256. https://doi.org/10.70088/ta9v8365

Zhyhailo, M., Bilyk, O., Borysova, A., & Mizyak, V. (2024). The role of cultural and creative competencies in shaping success of art ukrainian students. *Revista Amazonia Investiga*, *14*(75), 113-129. https://doi.org/10.34069/ai/2024.75.03.10

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**Authors contributions**

Andrii Liagushchenko was responsible for the conceptualization and design of the study, methodological framework development, statistical analysis, and overall supervision of the research process. Mykhailo Zakharevych contributed to the implementation of the blended learning intervention and coordinated data collection procedures. Stanislav Kotorobai participated in quantitative data processing and contributed to the interpretation of results. Olena Suslenska was responsible for organizing expert assessments of creative projects and contributed to qualitative data analysis. Ievgen Stopin contributed to literature review preparation, drafting sections of the manuscript, and revising the text for intellectual content. All authors contributed to the discussion of the results, critically revised the manuscript, and approved the final version for publication.

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