

PROJECT-TECHNOLOGICAL PRACTICE AS A MEANS OF DEVELOPING INTERDISCIPLINARY COMPETENCIES IN STUDENTS OBTAINING SPECIALIZED HIGHER EDUCATION IN ART PEDAGOGY

A PRÁTICA TECNOLÓGICA DO PROJETO COMO MEIO DE DESENVOLVER COMPETÊNCIAS INTERDISCIPLINARES EM ESTUDANTES QUE OBTERAM ENSINO SUPERIOR ESPECIALIZADO EM PEDAGOGIA DA ARTE

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Abstract

The purpose of this study is to explore how project-technological practice can facilitate the development of interdisciplinary competencies in students pursuing specialized higher education in art pedagogy. The research employed a combination of literature review, pedagogical observation, experimental teaching, creation of digital educational tools, and participation in practice conferences. The experimental work was conducted from 2020 to 2025 and included multiple stages of vocational training. The results demonstrated significant improvements in students' research abilities, digital literacy, methodological preparedness, creative thinking, and public presentation skills. The conclusion highlights that integrating creative, research, and digital activities into practice-oriented learning effectively fosters interdisciplinary competencies aligned with federal educational standards and supports the comprehensive professional development of future art teachers.

Keywords: Practice-Oriented Learning. Digital Educational Resources. Visual Literacy. Creative Pedagogical Methods.

Resumo

O objetivo deste estudo é explorar como a prática tecnológica de projetos pode facilitar o desenvolvimento de competências interdisciplinares em alunos que buscam educação superior especializada em pedagogia da arte. A pesquisa empregou uma combinação de revisão bibliográfica, observação pedagógica, ensino experimental, criação de ferramentas educacionais digitais e participação em conferências práticas. O trabalho experimental foi realizado de 2020 a 2025 e incluiu várias etapas de treinamento profissional. Os resultados demonstraram melhorias significativas nas habilidades de pesquisa, alfabetização digital, preparação metodológica, pensamento criativo e habilidades de apresentação pública dos alunos. A conclusão destaca que a integração de atividades criativas, de pesquisa e digitais na aprendizagem orientada para a prática promove efetivamente competências interdisciplinares alinhadas com os padrões educacionais federais e apoia o desenvolvimento profissional abrangente de futuros professores de arte.

Palavras-chave: Aprendizagem Orientada para a Prática. Recursos Educacionais Digitais. Alfabetização Visual. Métodos Pedagógicos Criativos.



1 INTRODUCTION

At the end of 2024, the Russian government announced a reform of the higher education system. The abandonment of the Bologna system and current trends and demands for the level of vocational training raise the need to reorganize the educational process. As part of the renewal of the higher education system, specialist and bachelor's degrees are referred to basic higher education, master's degrees to specialized higher education, and postgraduate studies to vocational education. In this context, developing interdisciplinary competencies in students receiving specialized higher education becomes particularly pertinent.

Each discipline within the educational program is responsible for competencies that the graduate develops during training, which include universal (UC), general professional (GPC), and specialized (SC) competencies. Today's world is characterized by the globalization of the information space, overarching digitalization, and generally the ever-accelerating pace of development of new technologies and the emergence of new professions (at the intersection of existing ones or new in principle). These circumstances emphasized the issue of developing the competencies of specialists responsible for their holistic perception of the world in its completeness, diversity, and ongoing dynamism, as well as competencies that generalize and unite knowledge, skills, and abilities from different fields of scientific knowledge and allow them to navigate and develop personally, think creatively, and solve such issues and problems, for which the fundamental theoretical knowledge base obtained in studying individual disciplines cannot prepare them. The latter owes to the fact that novel tasks that require immediate and original solutions emerge faster than the theoretical and methodological basis of fundamental knowledge is supplemented and improved.

The problem of graduates mastering the educational program and obtaining interdisciplinary competencies that promote their establishment as specialists in art pedagogy is solved by implementing practice-oriented learning. Through practice, which combines tasks from different disciplines in the educational program, the art pedagogy graduate can develop interdisciplinary competencies in a live, dynamic, and real process — industrial (pedagogical) practice. During practice, the student faces new problems, finding themselves in the real professional environment — the school. Here, we should

underscore that the general education system is the first to experience the effects of cultural, social, and economic changes, which dictate the development trajectory of teacher training in higher education.

Educational and industrial practice at the level of specialized higher education (master's degree) has significant differences from the practices of basic higher education (bachelor's and specialist's degrees). On the issue of interdisciplinarity of master's programs, Senashenko (2017) emphasizes: "The practical implementation of interdisciplinary educational programs implies the training of specialists who could combine research, design, technological, and entrepreneurial activities in their future work" (Senashenko, 2017, p. 92). One feature of practice as part of a master's degree in pedagogical education (educational program orientation "Fine and Decorative Arts") is that, considering the features of this level of education, the student continuously conducts research focused on solving current problems in art education.

Project-technological practice refers to industrial practice for master's degree students in direction 44.04.01 — "Pedagogical Education (Fine and Decorative Arts)" in the second year. This practice follows educational (introductory) and industrial (pedagogical) practices conducted in the first year of the master's program. The nature of the educational program and practices requires the student to conduct pedagogical research within the framework of practices, implementing the exploratory, formative, and confirmatory stages. The combination of practical teaching and research activities contributes to the graduate's critical thinking, analytical skills, and the ability to define and set goals in their learning and professional work.

Thus, this study aimed to test the opportunities to develop the interdisciplinary competencies of future art teachers using project-technological practice.

2 METHODS

In the framework of our research, we tried to ensure the interdisciplinary nature of students' practice by applying professional pedagogical, research, and creative activities, focusing on competencies in modern digital and media technologies. The experiment on organizing the project-technological practice was conducted from 2020 to

2025. Let us outline and describe the nature and characteristics of some tasks of project-technological practice:

1. Research and analysis of scientific and methodological literature on the research problem in the methodology of teaching fine arts.
2. Learning and studying the features of a particular educational (specialized) organization where the practice is organized: learning the general information about the educational organization, curriculum, directions and plan of educational work, timetable, and other educational and methodical documentation; studying methodical resources and the features of material and technical equipment of the classroom (auditorium) for disciplines in the arts cycle; getting acquainted with the curriculum of the discipline; investigating and studying the features of the teaching staff team, teachers of the art association, and the collective of young students (considering the age and psychological and physiological characteristics, the climate in the class/group, learners' level of training and motivation, etc.).
3. Observing and studying the methods and techniques used by an experienced teacher (head of practice from the specialized (educational) organization).
4. Developing scenarios for lessons/exercises, conducting them (approbation), generalizing and analyzing the work done, drawing conclusions, and determining the trajectory of work.
5. Observing and analyzing the methods and techniques of work used by fellow students when visiting each other's lessons/classes as part of the practice.
6. Developing and creating student-authored instructional videos on art topics in the form of a master class (a video that demonstrates the technology/process of making artwork/products) and an electronic learning tool (ELT) (a digital lesson/lesson for distance learning in video format).
7. Writing a diary of the industrial practice and preparing a presentation on the results achieved.
8. Participating in the final conference on the project-technological practice, which involves a public presentation of the student's practice results.

One of the most difficult tasks of this practice for students at the initial period of the experiment was to create their own digital learning content. Some of the challenges were the methodological content of the material, the search for creative solutions and

design of digital learning material, as well as technical support and the recording and editing of video materials. Notably, it was the period of the pandemic that most actualized the need to implement digital educational content and to find innovative methodological and technological techniques of teaching fine arts and decorative and applied arts within the framework of industrial practice.

The project-technological practice was organized to contribute as much as possible to the development of interdisciplinary competencies in students obtaining a master's degree in arts pedagogy. In this study focused on developing the interdisciplinary competencies of future art teachers as part of industrial practice, we identified a set of competencies that served as criteria to evaluate the results of project-technological practice:

1. Utilizes knowledge of art culture and the types and genres of artistic creativity in research and teaching of visual arts (IC1).
2. Applies theoretical and practical knowledge and skills of visual literacy in personal creativity and the methods of teaching visual arts (IC2).
3. Carries out creative and research activities in applied plastic arts (IC3).
4. Conducts research in visual arts teaching methodology, designs and carries out the teaching process using traditional and innovative methods (IC4).
5. Engages in creative activities to search for innovative methods of teaching visual arts, self-development, and application of the latest technologies in pedagogical practice (IC5).

At the end of the practice, supervisors evaluate the presentation at the final credit conference on design and technological practice, their reporting documentation, and the presentation materials prepared for defense, including a practice diary and the digital educational materials. The quality of pedagogical work carried out as part of the practice is assessed based on:

- competent presentation of the main provisions and conclusions of research in the framework of the research topic in the diary of industrial practice;
- the completeness and quality of the content of the methodological work in the scenarios of lessons and classes presented in the practice diary;

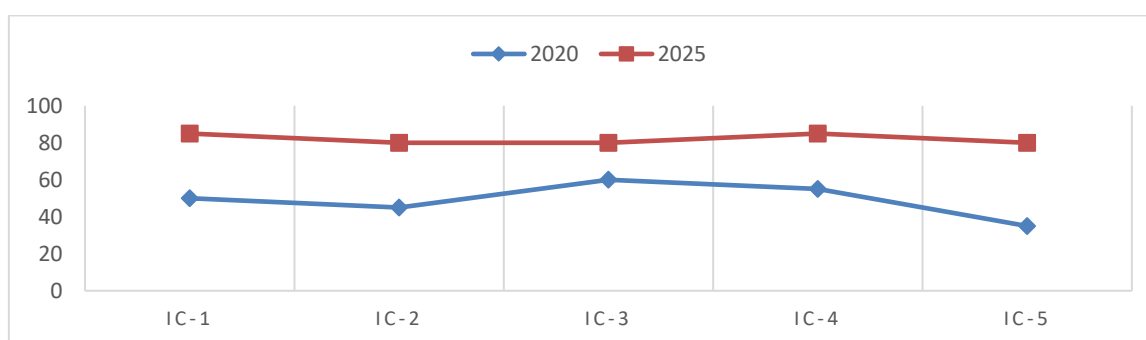
- the quality of visual methodological materials prepared by the trainee for conducting lessons and classes, including photo and video materials illustrating work as a teacher during the practice;
- methodological literacy, creative approach, and artistic design of digital learning materials developed as part of practice assignments;
- the quality of public speaking and presentation of the report on the results of the practice, reflecting the main research, methodological, and creative tasks;
- engagement and active participation in the discussion of reports at the final conference of the practice, the level of motivation to seek new and original solutions to problems in art pedagogy and creativity.

3 RESULTS

The results show a significant improvement in students' competencies in conducting scientific research, methodological training and the use of innovative forms and methods of conducting lessons/classes, mastery of digital technologies, public speaking and scientific report presentation skills, and general motivation (Figure 1).

Figure 1

Comparative analysis of the assessment of interdisciplinary competence of master's students following the results of project-technological practice.



The totality of interdisciplinary competencies of the graduate of the master's level educational program in art pedagogy presented in the study in interrelation with the universal and general professional competencies consistent with the Federal State Educational Standard of Higher Education for the direction of training 44.04.01.

Pedagogical education (FSES 44.04.01.) ensures that the graduate can carry out their professional activities (Table 1 and Figure 2).

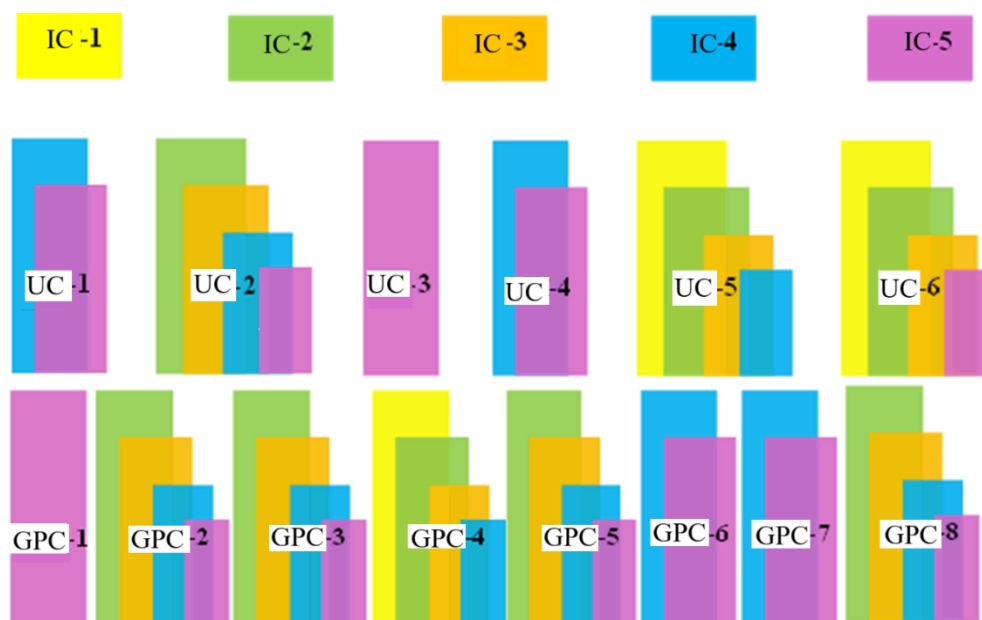
Table 1

Matrix of correspondence of interdisciplinary competences formed through educational practices to the requirements of FSES 44.04.01.

	IC1 Utilizes knowledge of art culture and the types and genres of artistic creativity in research and teaching of visual arts	IC2 Applies theoretical and practical knowledge and skills of visual literacy in personal creativity and the methods of teaching visual arts	IC3 Carries out creative and research activities in applied plastic arts	IC4 Conducts research in visual arts teaching methodology, designs and carries out the teaching process using traditional and innovative methods	IC5 Engages in creative activities to search for innovative methods of teaching visual arts, self-development, and application of the latest technologies in pedagogical practice
UC-1					
UC-2					
UC-3					
UC-4					
UC-5					
UC-6					
GPC-1					
GPC-2					
GPC-3					
GPC-4					
GPC-5					
GPC-6					
GPC-7					
GPC-8					

Figure 2

Correspondence of interdisciplinary competences formed during educational practices to the requirements of FSES 44.04.01.



Summarizing the obtained results on the project-technological practice of 2nd-year master's students in 2020-2025, we can note positive dynamics in their interdisciplinary competencies. Virtually all students involved in the experimental study showed readiness for professional creative, research, and pedagogical work. Year after year, most students demonstrated increasing engagement and interest in personal and professional growth and improved skills in the arts, teaching, and research.

4 DISCUSSION

The findings reveal that project-technological practice functioned as an integrated pedagogical ecosystem rather than a series of discrete, parallel tasks. This comprehensive approach successfully synthesized research assignments, classroom teaching, peer observation, digital content creation, and structured reflection. By enabling students to merge art-cultural knowledge with visual literacy, the model fostered the independent development of technological and methodological solutions. The consistently positive outcomes observed from 2020 to 2025 – wherein nearly all participants demonstrated

readiness for creative, research, and pedagogical work – attest to the model's robustness and sustainability across multiple cohorts. These results offer longitudinal empirical evidence supporting practice-oriented, research-rich preparation in master's-level art pedagogy, moving beyond purely theoretical discourse.

The mandate to create original digital educational resources – specifically video master classes and electronic learning tools within authentic school constraints – emerged as a critical driver of competency development. This requirement transformed digital literacy from a mere technical skill into a catalyst for methodological independence and research-informed lesson planning. Our integration of traditional classroom practice with technology-rich, project-based activities aligns with recent scholarship suggesting that blended pedagogical approaches significantly enhance digital competence and engagement in higher education (Medeshova et al., 2024). However, our findings contextualize this principle specifically within specialized master's programs that bridge art pedagogy and school-based practice.

The authentic, school-based construction of competencies IC1–IC5 prepares graduates not only for classroom instruction but also for the knowledge-based creative economy, where digital design, research literacy, and creative problem-solving converge. This aligns with broader analyses positioning higher education as a key driver of development through the harmonization of educational outcomes with labor market demands (Elshaiekh et al., 2024). Unlike innovation-oriented art education models that prioritize commercial outputs (Huang et al., 2025), our project-technological practice adapts these innovation principles to serve strictly pedagogical objectives.

Furthermore, supervisors' observations regarding student initiative, collaborative engagement, and reflective conference participation signal the successful formation of essential workplace dispositions. These findings resonate with behavior-based approaches to teacher evaluation (Feliciano, 2025), suggesting that our model cultivates professional attitudes alongside technical competencies. The explicit alignment of our interdisciplinary competencies with the FSES 44.04.01 standards exemplifies outcome-based curriculum design, paralleling frameworks that link specific indicators to broader learning outcomes (Roza et al., 2025). By employing constative, critical, and constructive research approaches (Antonsen et al., 2024), the model effectively prepares students for the complexities of professional practice.

Limitations. The study is subject to certain limitations, notably the single-program context and reliance on expert supervisory judgments, which may constrain generalizability. Future research should prioritize multi-site designs and mixed-methods approaches to further validate this interdisciplinary competency model. Additionally, longitudinal tracking of graduates' professional trajectories would provide valuable data regarding the model's long-term effectiveness in evolving educational contexts.

5 CONCLUSION

An important achievement in the implementation of the experimental model of developing interdisciplinary competencies during educational practices and receiving specialized higher education in art pedagogy was students' understanding of the continuity of educational processes, the development of their personality, vision, and understanding of the dynamics of changes in culture, society, and education, as well as understanding of their profession as a high mission. The experimental study demonstrated the importance of introducing the principles of interdisciplinary integration and the development of interdisciplinary competencies in the broad practice of the educational process of training an artist and a teacher.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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