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Article

Evolving Art Education in Europe: Embracing Cross-Disciplinary and Multicultural Perspectives

Nataliia Panova[1], Nataliia Demeshko[1], Volodymyr Humeniuk[1], Olena Rymska[1] and Tetiana Krylova[1]

[1]R. Glier Kyiv Municipal Academy of Music, Kyiv, Ukraine.

Correspondence: panova_natata@ukr.net

Abstract

Contemporary art education in Europe is based on the principles of transdisciplinarity and transculturality, and educational programs widely use artificial intelligence, virtual reality and digital tools. This study aims to analyze European art education trends and find ways to adapt and implement transdisciplinary and transcultural practices in Ukrainian educational institutions. Using the examples of Italy, France, the Netherlands, Germany and Spain, the article analyses transcultural and transdisciplinary European approaches to developing art education. The trends that should be implemented in Ukraine are highlighted, and on their basis, the course "Innovative Approaches in Art Education" is developed. The research methods used were comparative analysis, questionnaire, criterion and statistical analysis. In the study context, the control group of art education students studied according to the standard educational program. The developed course supplemented the educational program in the experimental group. A survey of teachers was conducted according to the criteria for assessing the effectiveness of the application of European educational practices of art education in the context of the educational process in Ukraine. The statistical evaluation results, according to the student's criterion, indicate the effectiveness of the course as a tool for implementing transdisciplinary and transcultural practices of European art education. The introduction of transdisciplinary and transcultural European approaches to European education is associated with the use of the STEAM approach, the implementation of digital technologies, the introduction of partnerships with creative and cultural industries and the development of transversal competences in art education.

Keywords: *art education, European integration, transdisciplinary, transversality, transculturality, digital art, digital education.*

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Introduction

The digitalization and globalization of European society and multicultural interaction are causing changes in the general concept of contemporary art education. The development of art education is shaping a fundamentally new type of specialist focused on applying creativity, adaptability, and global integration approaches, one who can combine art with culture, science, and technology. Changes in traditional approaches to art education in Europe and the introduction of educational trajectories based on the principles of transdisciplinarity, transversality, and transculturality require a rethinking of classical education models (van Baalen et al., 2021; Yanli & Danni, 2021).

In today's context, there is a growing trend towards integrating art education into the general educational context through transdisciplinary approaches, which allows for introducing elements of technology, design, and media into art projects. The EU countries' cultural diversity leads to transculturality, which necessitates developing and implementing new strategies for interaction between representatives of different cultures and traditions. Therefore, a strategically important stage in modernizing art education in Ukraine is to study the European experience of transdisciplinarity and transculturality.

However, in the context of this problem, there is a growing gap between traditional teaching methods and the requirements for art professionals who must apply transdisciplinary approaches and introduce digital art technologies. It is also worth noting that these approaches are fragmented, as well as the application of a holistic, innovative concept of training art professionals. Therefore, to integrate into the European educational and artistic space, it is essential to analyze successful art education practices in the EU and adapt them to the Ukrainian educational space, considering adaptation to socio-cultural and other country-specific characteristics.

The article studies trends in European art education and ways to adapt and implement transdisciplinary and transcultural practices in Ukrainian educational institutions.

Literature review

Castaño-Muñoz and Rodrigues (2021) outline the prospects for applying innovative trends in European education from the perspective of an interdisciplinary approach. Diaz et al. (2020) outline the peculiarities of the impact of European integration processes on the development of transcultural approaches in education. Mebert et al. (2020) argue that the introduction of innovative educational methods is

based on the principles of transculturality and transdisciplinarity. Romero-Gázquez et al. (2022) outline the trend toward introducing the STEAM approach, which ensures the implementation of the latest forms of artistic expression.

Liu and Guo (2022) explore the use of information technology in the context of art classes. Dotsenko et al. (2023) consider the technology of creating educational content for open digital resources based on transdisciplinary approaches. Oliynyk et al. (2022) note that using STEM is one way to develop transdisciplinarity. Trishch et al. (2022) consider trends in developing and applying transcultural approaches in the European Union. Myhovych (2019) outlines the contribution of globalization processes to developing transcultural and interdisciplinary approaches in education. Yanli and Danni (2021) highlight the need to prepare teachers to integrate European educational practices and develop transdisciplinarity.

In their study, Escudeiro et al. (2024) examine the implementation of the STEAME (Science, Technology, Engineering, Arts, Mathematics, and Entrepreneurship) project-based learning environment. The paper considers the need for integrated learning and the introduction of multidisciplinary project-based learning for higher education students. Zhao's (2023) study focuses on optimizing an art design environment management system, analyses the feasibility of developing the system, and tests the system's performance and load. The work of Christidi and Christopoulou (2022) showed that the educational community and society are very interested in innovative technologies, specifically STEAM education (science, technology, engineering, art, and mathematics). Podder et al. (2023) note that interdisciplinary approaches bring the teaching and learning process to an innovative level.

Ozel (2024) considers digital eclecticism in the context of art education development as a consequence of transdisciplinarity and the mixing of technological environments. Sookkaew et al. (2022) devoted their work to outlining a means of communicating art, using lines and shapes to create images ideal for composing and highlighting the identity style of fractal art and light during a festival as a work of art. Tosa et al. (2023) propose a combination of digital art and digital printing in the context of the development of the fashion industry. Florea et al. (2024) performed a computer analysis of visual art in paintings. They presented the Pandora database (Paintings Dataset for Recognizing the Art direction), which includes a collection of digitized paintings labeled according to artistic movements. The paper by Yi (2021) discusses computer-generated digital art design based on 3D animation special effects. It describes the development of 3D animation, special effects, and computer-generated digital art through various aspects.

Despite the existence of a rather broad array of studies, they are, as a rule, narrow-focused and have either purely theoretical or predominantly practice-oriented approaches, and the paradigm of transdisciplinarity in art education is not presented in an integrative manner.

Methodology

The research implies mixed methodology, combining bibliographic research, elements of a pedagogic experiment approach, and statistical analysis. The study of trends in art education in Europe included an analysis of the most successful cases of transdisciplinary and transcultural practices of art education in the context of European experience and possible ways of their implementation and adaptation to the conditions of higher education institutions in Ukraine. At the beginning of the study, an analysis of transcultural and transdisciplinary approaches to developing art education was carried out using the example of EU countries. The next stage was the development of criteria for the implementation and adaptation of European art education approaches to the conditions of Ukrainian higher education institutions. Next, the effectiveness of the application was assessed, the most successful practices of art education in Europe were identified, which should be adapted to the conditions of higher education institutions in Ukraine, and the effectiveness of the application of these practices was assessed. The study was conducted in 2023–2024 based on the R. Glier Kyiv Municipal Academy of Music. The overall number of students participating in the experimental study was 49. The participant selection process was based on simple random sampling among the four groups of the cohort of 3rd-year students. One of the four groups was thus selected as control one (the group consisted of 24 students), and one – as experimental one (the group consisted of 25 students).

The course "Innovative Approaches in Art Education" was developed and implemented in the study. The control group of higher education students studied according to the established curriculum. In comparison, the experimental group of higher education students used the curriculum with the course "Innovative Approaches in Art Education" integrated into it. The course included research on art education in Europe and the study of innovative transdisciplinary and transcultural approaches in art.

A total of 32 teachers evaluated the effectiveness of implementing and adapting European art education approaches to the conditions of Ukrainian higher education institutions. The evaluation was based on a questionnaire (Appendix 1), a 12-point scale formed based on the criteria for the effectiveness of transdisciplinary and transcultural

European practices. A statistical calculation was also carried out according to the student's criterion.

The framework of our research implies the application of two related but different paradigms – transdisciplinarity and interdisciplinarity. In order to create a coordinated and cohesive whole, interdisciplinarity examines, synthesizes, and harmonizes the connections between disciplines. At the same time, transdisciplinarity breaks down the conventional boundaries between the scientific, social, and health sciences and combines them within a humanities framework.

Results

European art education is based on a combination of classical traditions, innovative technologies, and the introduction of interdisciplinarity and transculturality principles into the educational process. Table 1 presents an analysis of transcultural and transdisciplinary approaches to the development of art education in the EU.

Table 1. Analysis of transcultural and transdisciplinary European approaches to the development of art education

Country. EU	Example of implementation	The concept of education
Germany	Applying the STEAM approach to integrate science and art: The Berlin University of the Arts offers a program that combines design, art, and digital technologies	STEAM combines programming, mathematics, and art, and media artists and engineers collaborate to create interactive artworks and installations.
		We cooperate with art institutions worldwide, contributing to the transcultural nature of our educational programs.
France	Preserving artistic traditions is integrated with modern artistic means in the Paris Higher National Conservatory of Music and Dance context.	An interdisciplinary approach is being applied, and urban studies and socio-cultural analysis courses are being introduced.
		The curriculum includes joint projects with world art centers to broaden the artistic outlook of higher education students.
Italy	Implementation of the latest art practices and inheritance of traditions:	Mastering the skills of 3D modeling and virtual restoration of Renaissance works.

	For example, the Florence Academy of Fine Arts combines VR, AR, and media with traditional painting and sculpture.	Collaboration with museums, conservatories, and universities to integrate courses on studying the world's cultural heritage.
Netherlands	Interdisciplinary research and implementation of creative industries are used. For example, the Amsterdam Academy Gerrit Rietveld combines architecture, fashion, music, and visual arts.	Application of transdisciplinary approaches, use of artificial intelligence to create costumes and interactive installations
		A unique educational environment is created through the implementation of student exchange programs and art exhibitions
Spain	The Catalan University of Contemporary Arts focuses on integrating art and the social environment, and public projects are being developed to integrate urban studies, art, and social sciences.	Training artists who create multimedia objects, graffiti, and illustrations aimed at interacting with the public.
		Mastering global artistic trends in the context of studying world cultures.

Source: compiled by the authors based on (Castaño-Muñoz & Rodrigues, 2021; Mebert et al., 2020; Escudeiro et al., 2024; Romero-Gázquez et al., 2022; Florea et al., 2024)

Implementing and adapting European approaches to art education to the conditions of Ukrainian higher education institutions requires the development of modern methodological approaches based on the principles of transdisciplinarity and transculturality. While analyzing transcultural and transdisciplinary European approaches to the development of art education, the appropriate trends for implementation in Ukraine were identified and summarized in the course "Innovative Approaches in Art Education." Table 2 shows the structure of the course "Innovative Approaches in Art Education," which was conducted for the students of the experimental group.

Table 2. Structure of the course "Innovative Approaches in Art Education."

Module	Module content	Result
STEAM approach as a tool for developing transdisciplinary knowledge	AI tools, neural networks, and digital technologies are used to implement interdisciplinary art projects involving engineers, designers, programmers, and art historians.	Increasing the competitiveness of art professionals, developing digital competencies, and creating art projects.

Application of transcultural approaches in art education	Organizing international art workshops, studying the cultural codes of different nations, and seminars with world-class artists.	Raising awareness of higher education students about global trends in the field of art, fostering intercultural dialogue, and expanding international cooperation.
Implementation of digital technologies in art education	The use of AR and VR to create virtual galleries, digital exhibitions, 3D models, and AI to analyze art trends.	Participation in digital educational initiatives, expanding access to artistic heritage.
Establishing partnerships with creative and cultural industries	Developing art projects for social initiatives and participating in collaborative programs with galleries, theatres, and design companies.	Development of design industries and integration of specialists in the labor market.
Transversal competencies in art education.	Art management and cultural entrepreneurship in the context of project management and critical thinking.	Developing soft skills, creative management, and presentation skills for art projects.

Criteria and indicators have been developed and outlined to assess the effectiveness of applying European educational practices. Appendix 1 presents a questionnaire for teachers developed in accordance with the criteria and based on a 12-point scale.

Table 3 presents the criteria for assessing the effectiveness of applying European educational practices of art education in the context of the educational process in Ukraine. Four criteria are outlined: transdisciplinarity (TD), transculturality (TC), innovative teaching tools (IT), and practical implementation (PI).

Table 3. Criteria for evaluating the effectiveness of the application of European educational practices of art education in the context of the educational process in Ukraine

Criterion and designation	**Criterion indicator**
Transdisciplinarity (TD)	Developing STEAM skills that combine art with science and technology
	Conducting interdisciplinary research and projects
	Formation of joint projects with research centers and students of other specialties
Transculturalism (TC)	Cooperation within international partnerships under bilateral agreements
	Participation of higher education students in international competitions, exhibitions, festivals
	Development of cultural competence based on the integration of world art traditions

Innovative teaching tools (IT)	Use of problem-based and practice-oriented learning, interactive technologies
	The use of virtual and augmented reality, multimedia educational platforms and artificial intelligence tools in art education
	Involvement of higher education students in experimental creative projects, art laboratories
Practical implementation (PI)	Student participation in international art projects
	Students 'participation in commercial art development initiatives
	Involvement of students in national and regional art

Based on the developed criteria, a questionnaire designed for a 12-point rating scale was conducted among teachers to assess the effectiveness of applying European educational practices of art education in the context of the educational process in Ukraine. Figure 1 shows the results of evaluating the application of European educational practices of art education in the context of the educational process in Ukraine.

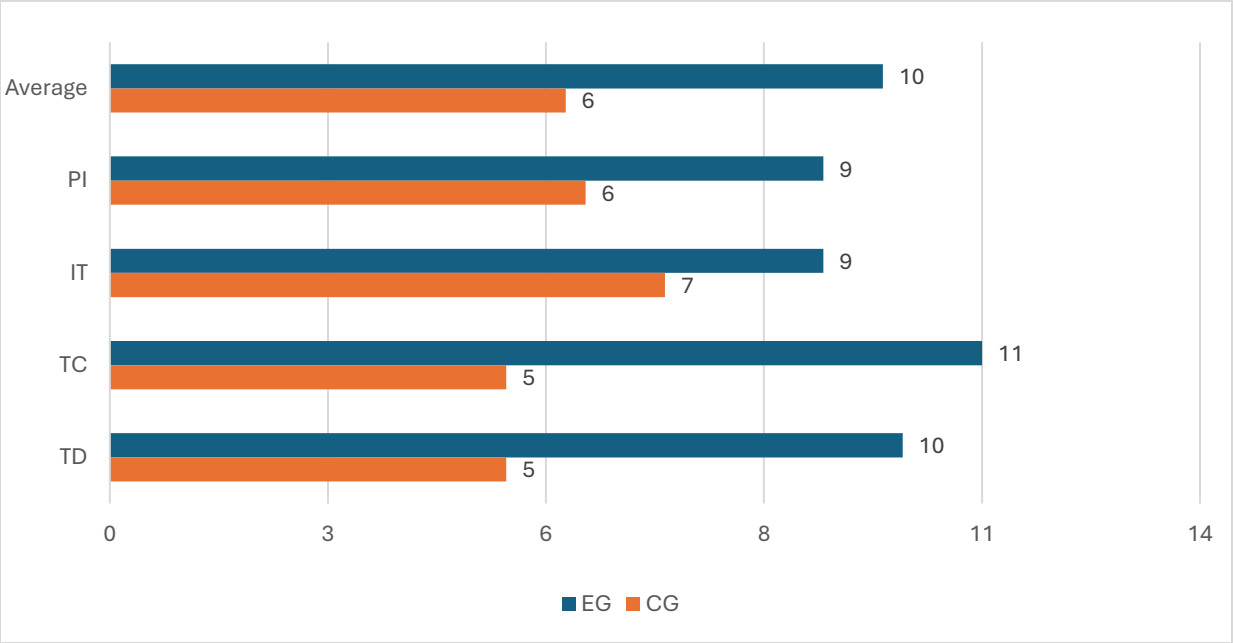

Figure 1. Results of the evaluation of the application of European educational practices of art education in the context of the educational process in Ukraine

Notes: TD-criterion of transdisciplinarity, TC-criterion of transculturality, IT-criterion of application of innovative teaching tools, PI-criterion of practical implementation
Source: developed by the authors

Based on the data presented in Figure 1, it can be concluded that after the introduction of the European experience of art education in the context of the educational process in Ukraine, the indicator of the criterion of transdisciplinarity increased from 5 to 10 points, the indicator of the criterion of transculturality increased from 5 to 11 points, the indicator of the criterion of the use of innovative teaching aids increased from 7 to 9 points, the indicator of practical implementation changed from 6 to 9 points. The average indicator of the assessment of the application of European educational practices of art education in the context of the educational process in Ukraine has increased from 5.75 to 9.75, which indicates the feasibility of implementing the European practices of art education outlined in Table 2.

It is also advisable to carry out a statistical calculation of the effectiveness of implementing the European experience of art education in the context of the educational process in Ukraine (Table 4). The student's criterion was chosen for such an assessment, as it is designed to assess the difference in the mean values of two samples distributed according to customary law. Its advantage is its breadth of application.

Table 4. Statistical calculation of the effectiveness of implementing the European experience of art education in the context of the educational process in Ukraine

Criterion	Samples		Deviation from the average		Deviation squares	
	CG	EG	B.1	B.2	B.1	B.2
TD	5	10	-0.75	0.25	0.5625	0.0625
TC	5	11	-0.75	1.25	0.5625	1.5625
IT	7	9	1.25	-0.75	1.5625	0.5625
PI	6	9	0.25	-0.75	0.0625	0.5625
Amounts:	23	39	0	0	2.75	2.75
Average:	5.75	9.75				

Notes: TD – criterion of transdisciplinarity, TC – criterion of transculturality, IT – criterion of application of innovative teaching tools, PI – criterion of practical implementation; EG – experimental group, CG – control group

The control group studied according to the established curriculum, and the experimental group studied according to the established curriculum, integrating the course "Innovative Approaches in Art Education". The critical values for the sample are $\varrho \leq 0.05=2.45$; $\varrho \leq 0.01=3.71$, the obtained empirical value $t_{emp}=6$, which indicates the

statistical reliability of the effectiveness of the implementation of European experience of art education in the context of the educational process in Ukraine. Figure 2 shows the visualization of the statistical significance of the data obtained.

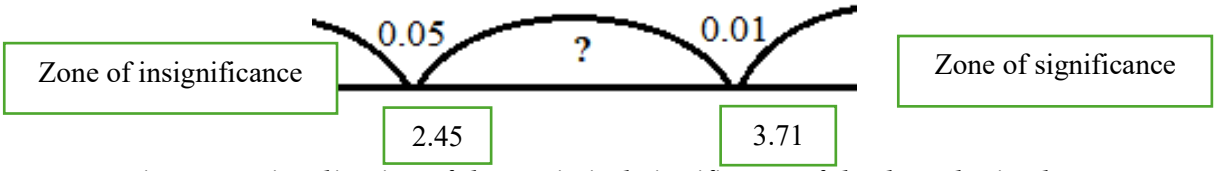

Figure 2. Visualization of the statistical significance of the data obtained

Source: calculated by the authors

According to Figure 2, $t_{emp} = 6$ indicates that it belongs to the zone of significance; therefore, introducing the European experience in art education in the context of the educational process in Ukraine through introducing the course "Innovative Approaches in Art Education" is appropriate.

Discussions

Diaz et al. (2023) explore how digitalization, particularly the digital art technology NFT (non-fungible token), has changed the art industry. The theoretical framework relating to art, the market, and important ideas such as blockchain, cryptocurrencies, and cryptographic art is analyzed. The results, which compare sales of global artworks with sales of NFTs, suggest that NFTs can create an economic effect equivalent to that of the market for tangible artworks, albeit with a potential decline in the future. This study sheds light on how NFTs affect the art industry and highlight the ongoing need for interdisciplinary research in this constantly evolving field. Reimann et al. (2022) outline the problem of implementing and recognizing new forms of learning based on the widespread use of information technology. The article presents the results of a study of the readiness of Ukrainian society to accept and recognize new forms of training and education at the level of those who make decisions about hiring employees. The article analyses their understanding and preferences for different educational formats. The article also presents opinions on the flexibility of learning and assessment of future professionals' knowledge in the context of new global trends. Integrating digital technologies into art is an important aspect of the development of transdisciplinary education. A transdisciplinary approach requires integrating hybrid learning, AI, and virtual reality tools. However, it is important to determine how effectively higher education institutions can implement

digital technologies in art education programs. The current study outlines ways to implement innovative European digital technologies in art education.

Zhao and Liu (2022) argue that achievement-based education has become an advanced concept of innovative vocational education in Europe and America. Based on the concept of achievement-based education, the paper outlines using a design studio as a learning platform and delivering vocational education with a clear goal orientation. The proposed approach can improve students' self-learning ability and creative competence. Rodier and Carter (2023) note that creating a curriculum based on academic disciplines and practices to achieve meaningful and effective outcomes is challenging. To date, no framework for STEAM collaboration addresses the full range of academic disciplines and non-academic profiles to create interdisciplinary knowledge systematically. The study presents an evaluation of the STEAM approach for conducting transdisciplinary research. It is determined that interdisciplinary STEAM collaboration is important for addressing the complex challenges of the 21st century, as it can offer new ways of learning, knowing, and collaborating with a more holistic view of the world. One of the European trends in art education is practice-oriented learning, which leads to the development of critical thinking and creativity (Díaz et al., 2023). The current study outlines how to adapt such approaches to the Ukrainian art education system. However, an important aspect of further research is to analyze the mechanisms for introducing such methods into the curricula of artistic specialties.

The evolution of art learning and teaching in the digital era is undergoing a powerful transformational change with the emergence of accessible online resources. They offer a wide range of new possibilities for emerging artists, from tutorials as additional help in learning new techniques, to using digital art books for literature, to social media as a source of inspiration or joining communities and promoting their artwork, or using digital libraries of photographs, videos, and other artworks. Pahel et al.'s (2024) study, conducted by surveying students at Algebra University of Design during the winter semester of 2023/2024, sought to answer the questions of whether students use online art resources, how they assess the quality of these resources and their use in formal education, and to what extent they find them useful for artistic learning and development. Andrews and Hawcroft (2024) note that artificial intelligence is a technical support for art design and a new art form. Artworks with artificial intelligence are a new artistic form of integrating contemporary art and technology, and more and more artworks based on the use of artificial intelligence are appearing on the art market. The article by Wang and Ma (2024) explores the significance and development status of AI artworks. It highlights the value of AI

artworks by comparing the procedures and methods of artistic creation between humans and AI artworks. The current study correlates with the authors' views on the effectiveness of introducing digital resources and AI tools that create new forms of art design and promote the development of transdisciplinary approaches to art education.

The development of computer graphics is an important contribution to interdisciplinary research, a discipline that combines art, design, science, and technology. Singh (2021) outlines the application of digital arts in an interdisciplinary context. The author describes the basic principles of the Digital Arts course, which was introduced to provide students with computer graphics skills and teach them how to create visual content to explain their research. The course content includes 2D graphics, animation, filmmaking, and editing skills. Science and technology, culture, and contemporary art design have achieved breakthrough results in the twenty-first century. The article by Wu and Yang (2021) makes an in-depth study of contemporary art design. It introduces the concept and significance of contemporary art design, analyses the current situation of contemporary art design in the Internet era and related issues, and discusses the future development trends of contemporary art design in the current era. It is important to adapt the European mechanisms for assessing courses in innovative art technologies to the realities of Ukrainian higher education institutions, and some aspects of this are outlined in the current study. Preference is given to flexible models that combine art, technology, and culture, ensuring transdisciplinarity and transculturality of art education and integration into the European space.

Conclusions

The art education system in Europe is based on the principles of transdisciplinarity and transculturality and includes a wide range of innovative implementation methods. An important aspect of the study is the adaptation of modern European trends in art education in Europe, considering the national context of Ukraine. The article analyses transcultural and transdisciplinary European approaches to developing art education, using the examples of countries such as Italy, France, the Netherlands, Germany, and Spain. The trends in art education that should be implemented in Ukraine are highlighted and summarized in the course "Innovative Approaches to Art Education." The article outlines the structure of the course, which includes the STEAM approach as a tool for the development of transdisciplinary knowledge, the use of transcultural approaches in art education, the implementation of digital technologies, the introduction of partnerships with creative and cultural industries, and transversal competences in art education.

In order to evaluate the effectiveness of the application of European educational practices of art education in the context of the educational process in Ukraine, the

criteria have been developed, which include transdisciplinarity, transculturality, innovative teaching tools, and practical implementation. According to these criteria, the application of European educational practices of art education in the context of the educational process in Ukraine was evaluated and statistically calculated by questioning teachers according to the developed criteria. The criterion and statistical evaluation results show the course's effectiveness as a tool for implementing transdisciplinary and transcultural practices of European art education. Ensuring the implementation of these practices forms a new concept of art education aimed at cultural interaction and interdisciplinary integration. The need for further exploration implies taking into account country-specific cultural dimensions influencing art practices.

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Conflicts of Interests

The authors declare no conflict of interest.

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