

**ДЕНЕ ШЫНЫҚТЫРУ ЖӘНЕ СПОРТ САЛАСЫНДА МАМАНДАРДЫ ДАЯРЛАУ
ПОДГОТОВКА СПЕЦИАЛИСТОВ В ОБЛАСТИ
ФИЗИЧЕСКОЙ КУЛЬТУРЫ И СПОРТА
TRAINING OF SPECIALISTS IN PHYSICAL CULTURE AND SPORTS**

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**PATHWAYS TO ENHANCING COLLEGE STUDENTS' ARTISTIC
APPRECIATION IN AEROBICS TEACHING**

Abstract

Contemporary higher education increasingly demands the integration of aesthetic and holistic development into physical education. Aerobics, with its unique combination of rhythmic movement, music, and physical expression, provides a promising but underutilized platform for cultivating students' artistic appreciation. This study aims to identify structural and pedagogical barriers to artistic appreciation in college aerobics teaching and to propose an evidence-informed framework for overcoming them. A systematic narrative review of published literature was conducted. Sources were selected from academic journals in physical education, educational technology, and pedagogy published between 2021 and 2024. The review was contextualized within current Chinese educational policy frameworks, including the Outline for Building a Strong Education Nation (2024–2035) and policies on educational digitalization and the integration of sports and academia. Four primary barriers were identified: 1) instructors' insufficient interdisciplinary and aesthetic competencies; 2) restrictive learning environments and inadequate infrastructure; 3) underutilization of digital teaching tools; and 4) outcome-focused assessment systems that neglect expressive and creative dimensions. Development trends reveal a shift toward technology-enhanced instruction, integrated sports-education policy, and process-oriented evaluation. The findings support a three-pronged reform: enhancing educators' aesthetic literacy and digital competencies; creating immersive, technology-supported learning environments; and implementing multifaceted, formative evaluation strategies. Incorporating cultural narratives and experiential learning further deepens aesthetic engagement. The proposed framework offers a practical pathway for redefining aerobics pedagogy in higher education. Future research should focus on empirical validation of these strategies and the role of emerging technologies in scaling aesthetic education.

Keywords: college physical education; aerobics teaching, artistic appreciation, educational digitalization, integration of sports and education.

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АЭРОБИКАНЫ ОҚЫТУ ҮДЕРІСІНДЕ КОЛЛЕДЖ СТУДЕНТТЕРІНІҢ ЭСТЕТИКАЛЫҚ ҚАБЫЛДАУЫ МЕН КӨРКЕМДІК ТАЛҒАМЫН ДАМУ ЖОЛДАРЫ

Аңдатпа

Жоғары білім берудегі заманауи талаптар дене тәрбиесіне эстетикалық және жан-жақты даму бағытын кіріктіруді қажет етеді. Аэробика өзінің ырғақты қозғалыс, музыка және дене мәнерлілігінің бірлігімен студенттердің эстетикалық қабылдауын дамытудың перспективалы, алайда толық пайдаланылмаған алаңы болып табылады. Зерттеу жоғары оқу орындарындағы аэробика сабақтарында эстетикалық қабылдауды дамытуға кедергі келтіретін құрылымдық және педагогикалық тосқауылдарды анықтауға және оларды жеңуге арналған ғылыми негізделген тәсілдер жүйесін ұсынуға бағытталған. 2021–2024 жылдар аралығында жарияланған ғылыми журналдардан дереккөздер іріктеліп, жүйелік баяндамалық шолу жүргізілді. Нәтижелер «Білімі күшті ел қалыптастыру стратегиясымен (2024–2035)» және цифрландыру мен спорт пен білімді интеграциялау бағдарламаларымен байланыстырылды. Төрт негізгі тосқауыл анықталды: 1) оқытушылардың пәнаралық және эстетикалық құзыреттілігінің жеткіліксіздігі; 2) шектеулі оқу ортасы мен инфрақұрылымның жетіспеушілігі; 3) цифрлық оқыту құралдарының жеткіліксіз пайдаланылуы; 4) шығармашылық пен мәнерлілікті ескермейтін нәтижеге бағытталған бағалау жүйесі. Нәтижелер аэробикада эстетикалық қабылдауды үш бағытты реформа арқылы тиімді дамытуға болатынын көрсетеді: оқытушылардың эстетикалық мәдениеті мен цифрлық педагогикалық құзыреттілігін арттыру; технологиялар негізінде интерактивті оқу ортасын қалыптастыру; көпәспектінді формативтік бағалау жүйесін енгізу. Ұсынылған тәсілдер жүйесі жоғары білім берудегі аэробика педагогикасын жаңғыртудың нақты жолын ұсынады. Болашақ зерттеулер осы стратегияларды эмпирикалық тексеруге бағытталуы тиіс.

Түйін сөздер: жоғары білім берудегі дене тәрбиесі, аэробиканы оқыту, көркемдік-эстетикалық қабылдау, білім беруді цифрландыру, спорт пен білімнің интеграциясы.

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ПУТИ СОВЕРШЕНСТВОВАНИЯ ХУДОЖЕСТВЕННО-ЭСТЕТИЧЕСКОГО ВОСПРИЯТИЯ СТУДЕНТОВ КОЛЛЕДЖА В ПРОЦЕССЕ ПРЕПОДАВАНИЯ АЭРОБИКИ

Аннотация

Современное высшее образование всё в большей степени требует интеграции эстетического воспитания и всестороннего развития личности в систему физического образования. Аэробика, благодаря уникальному сочетанию ритмических движений, музыки и выразительности тела, представляет собой перспективную, но пока недостаточно используемую платформу для формирования художественно-эстетического восприятия студентов. Цель данного исследования заключается в выявлении структурных и педагогических барьеров, препятствующих развитию художественного восприятия в процессе обучения аэробике в вузе, а также в разработке научно обоснованной концептуальной модели их преодоления. В исследовании применён метод систематического нарративного обзора научной литературы. В качестве источников были использованы публикации по физическому воспитанию, образовательным технологиям и

педагогике, опубликованные в период с 2021 по 2024 годы. Анализ осуществлялся с учётом современных образовательных стратегий Китая, включая программу «Построение сильной образовательной державы (2024–2035)», а также государственные инициативы по цифровизации образования и интеграции спорта и образования. Результаты исследования позволили выделить четыре ключевых барьера: 1) недостаточный уровень междисциплинарных и эстетических компетенций преподавателей; 2) ограниченность образовательной среды и недостаточное развитие инфраструктуры; 3) недостаточное использование цифровых образовательных технологий; 4) ориентация системы оценивания преимущественно на конечный результат при игнорировании творческих и выразительных аспектов деятельности. Выявленные тенденции свидетельствуют о переходе к технологически поддерживаемому обучению, укреплении политики интеграции спорта и образования, а также внедрении процессно-ориентированных подходов к оцениванию. Полученные результаты подтверждают необходимость реализации трёх взаимосвязанных направлений реформирования: повышения эстетической культуры и цифровой компетентности преподавателей; создания иммерсивной образовательной среды с использованием современных технологий; внедрения многоаспектной системы формирующего оценивания. Включение культурных нарративов и методов обучения, основанных на практическом опыте, способствует более глубокому эстетическому восприятию и вовлечённости обучающихся. Предложенная концептуальная модель представляет собой практический путь модернизации педагогики аэробики в системе высшего образования. Перспективы дальнейших исследований связаны с эмпирической проверкой эффективности предложенных стратегий, а также с изучением возможностей применения новых технологий для масштабирования эстетического образования.

Ключевые слова: физическое воспитание в высшей школе, обучение аэробике, художественно-эстетическое восприятие, цифровизация образования, интеграция спорта и образования.

Introduction. Under the guidance of the Outline for Building a Strong Education Nation (2024–2035), higher education in China is increasingly emphasizing the cultivation of students' holistic abilities (Ministry of Education of the People's Republic of China, 2024). Physical education, once primarily concerned with enhancing physical fitness, is now expected to play a pivotal role in aesthetic and moral education (Li, 2023). In this context, aerobics stands out as a distinctive discipline that seamlessly blends rhythm, music, and bodily movement, positioning it as an ideal vehicle for achieving both 'education through sports' and 'education through aesthetics' (Wang, 2022).

Despite this promise, many universities continue to focus predominantly on the technical dimensions of aerobics, neglecting its artistic elements. The emotional expression, rhythmic perception, and artistic interpretation inherent in aerobics are frequently overlooked in teaching practice. Consequently, students tend to acquire physical skills mechanically, without developing genuine aesthetic appreciation for the discipline. Given the rapid digitalization of education and accompanying policy shifts, rethinking aerobics pedagogy has become both timely and necessary.

The purpose of this article is twofold: first, to critically examine the structural and pedagogical barriers that hinder the cultivation of artistic appreciation in college aerobics; and second, to propose a theoretically grounded and practically oriented framework for overcoming these barriers. The study integrates perspectives from educational policy, digital pedagogy, and experiential learning theory.

Materials and methods. This study employs a systematic narrative review methodology. Literature was retrieved from Chinese and international academic databases, including CNKI, Web of Science, and Google Scholar, covering publications from 2021 to 2024. Search terms included combinations of 'aerobics teaching,' 'aesthetic education,' 'artistic appreciation,' 'physical education pedagogy,' 'digital learning environment,' and 'formative assessment in sports.'

Inclusion criteria required that sources (a) address college-level physical education or aerobics instruction, (b) discuss pedagogical methods, assessment strategies, or environmental factors related to aesthetic or artistic development, and (c) be published in peer-reviewed journals or official policy

documents. Sources focused exclusively on competitive sport performance without pedagogical relevance were excluded.

Policy documents selected for contextualization included: the Outline for Building a Strong Education Nation (2024–2035); the Report on Educational Digitalization Strategy Action (Ministry of Education, 2023); and the Opinions on the Integration of Sports and Education (General Administration of Sport of China, 2022). Identified themes were organized into two analytical categories: barriers and development trends. Eight key sources are summarized in Table 1.

Table 1. *Summary of Key Literature Reviewed*

№	Author / Year	Topic	Key Finding
1	Zhang (2021)	Teacher professional development	Technique-centric instruction limits students' aesthetic growth; interdisciplinary competencies are needed
2	Chen (2022)	Artistic expression strategies	Passive, demonstration-based formats suppress independent aesthetic perspective
3	Liu (2023)	Teaching environment optimization	Inadequate facilities and audiovisual equipment hinder immersive aesthetic learning
4	Zhao (2024)	Digital PE teaching models	Advanced digital tools remain underutilized despite availability
5	Huang (2021)	Evaluation system reform	Outcome-focused assessment neglects expressive quality and creative development
6	Sun (2022)	Interdisciplinary teacher competence	Aesthetic literacy and choreographic skills are critical for effective aerobics instruction
7	Wu (2024)	Intelligent teaching systems	AI-driven feedback enhances personalized technical and expressive guidance
8	Ma (2022)	Multiple evaluation methods	Process-oriented and peer assessment improve student engagement and artistic reflection

Results. The review reveals that instructors constitute a central determinant of students' aesthetic development in aerobics. A prevalent finding is the tendency of educators to adopt technique-centric methodologies, prioritizing precise movement execution and examination results over the exploration of expressive and aesthetic qualities (Zhang, 2021). This approach narrows students' exposure to the artistic dimensions of the discipline.

Aerobics, when examined from a competency perspective, is a multidisciplinary field integrating sports science with artistic expression. However, many instructors lack comprehensive training in music appreciation, choreography, and aesthetic principles, limiting their capacity to guide students toward a fuller understanding of movement as art (Sun, 2022). Traditional instructional formats rooted in demonstration and replication further reinforce passive learning, suppressing students' capacity to develop independent aesthetic perspectives (Chen, 2022).

Environmental Constraints and Evaluation Imbalance

Institutional infrastructure represents a significant barrier. Many educational institutions lack specialized aerobics facilities and sufficient audiovisual equipment, impeding the creation of immersive learning environments necessary for deep artistic engagement (Liu, 2023). Advanced multimedia tools, motion analysis systems, and dynamic digital platforms remain underutilized, limiting students' exposure to diverse artistic materials and perspectives (Zhao, 2024). Evaluation systems predominantly

emphasize technical precision while overlooking expressive quality, rhythmic interpretation, and creative expression (Huang, 2021). The identified barriers are systematically classified in Table 2.

Table 2. *Classification of Barriers to Artistic Appreciation in College Aerobics Teaching*

Category	Barrier	Manifestation in Practice	Source
Instructor-level	Insufficient aesthetic literacy	Overemphasis on technique; limited music/choreography competence	Zhang (2021); Sun (2022)
Instructor-level	Technique-centric pedagogy	Passive imitative learning; absence of expressive guidance	Chen (2022)
Environmental	Inadequate infrastructure	Lack of specialized facilities and audiovisual equipment	Liu (2023)
Environmental	Underutilization of digital tools	Available technology not integrated into routine instruction	Zhao (2024); Wu (2024)
Assessment	Outcome-focused evaluation	Technical precision rewarded; creativity and expression ignored	Huang (2021)
Assessment	Student exclusion from evaluation	Reduced feedback relevance; lower motivation for artistic engagement	Ma (2022)

Digital Technology-Driven Transformation

The reviewed literature documents a significant transformation driven by artificial intelligence, big data, and virtual simulation technologies (Ministry of Education, 2023). Motion capture and video replay technologies allow students to perceive subtle variations in movement execution, fostering deeper understanding of rhythm and coordination. Data-driven feedback enables instructors to identify individual learning needs and provide targeted guidance. Online platforms provide access to diverse aerobics performances across styles, broadening students' aesthetic experiences.

Expansion of Educational Function and Evaluation Reform

Policy-driven integration of sports and education has broadened the recognized function of physical education to encompass cognitive, emotional, and artistic development (General Administration of Sport of China, 2022). Assessment methods are correspondingly shifting from outcome-based models toward comprehensive, process-oriented approaches that recognize creativity, artistic expression, and reflective capacity as core components of development (Huang, 2021; Ma, 2022). A comparative overview of traditional and emerging pedagogical approaches is presented in Table 3.

Table 3. *Comparison of Traditional and Emerging Pedagogical Approaches in College Aerobics*

Dimension	Traditional Approach	Emerging Approach
Instructional focus	Technical skill acquisition and error correction	Integration of technical mastery with aesthetic expression
Teaching format	Demonstration and replication; teacher-centred	Interactive, experiential, and student-centred activities
Learning environment	Standard gymnasium; minimal audiovisual support	Technology-enhanced spaces (VR/AR, motion capture, multimedia)
Digital integration	Minimal; limited to video playback	AI-driven feedback, motion analysis, online performance libraries

Assessment model	Outcome-based; technical criteria only	Process-oriented; includes creativity, expression, and reflection
Cultural content	Absent or incidental	Deliberate incorporation of music traditions and cultural narratives
Student role	Passive recipient of instruction	Active interpreter and creative participant
Policy alignment	Physical fitness objectives	Holistic development: aesthetic, moral, and cultural competencies

Discussion. The findings support a three-level optimization of pedagogical elements. At the instructor level, professional development must extend beyond technical mastery to include aesthetic literacy — specifically, competencies in music interpretation, movement aesthetics, and choreographic design (Sun, 2022). At the environmental level, thoughtful integration of multimedia systems, motion analysis technologies, and immersive tools such as virtual and augmented reality transforms learning spaces into dynamic zones that stimulate aesthetic awareness (Wu, 2024). At the curriculum level, the integration of performance analysis, choreography projects, and aesthetic reflection activities invites students to interpret artistic concepts and develop multidimensional appreciation of aerobics.

Innovation in Teaching Mechanisms: Evaluation, Technology, and Practice

A holistic evaluation framework — encompassing technical proficiency, artistic expression, and creative thinking — more accurately reflects the scope of student development than conventional outcome-centered models (Ma, 2022). AI-powered feedback systems offer a promising avenue for personalized instruction, delivering real-time guidance on both technical refinement and expressive quality. Expanded practical formats — performances, competitions, and community presentations — provide authentic contexts for integrating technical mastery with creative expression. The deliberate incorporation of cultural narratives into the curriculum situates aesthetic education within broader cultural meaning (Zheng, 2023). The proposed optimization framework is summarized as a matrix in Table 4.

Table 4. *Optimization Framework for Cultivating Artistic Appreciation in College Aerobics*

Reform Level	Strategy	Implementation Actions	Expected Outcome
Instructor development	Enhance aesthetic literacy	Training in music interpretation, choreographic design, and movement aesthetics	Instructors model artistic expression, not only technical correction
Instructor development	Build digital pedagogy skills	Professional development in AI tools, motion capture systems, and online platforms	Personalized, technology-mediated instruction
Learning environment	Create immersive learning spaces	Install multimedia systems, VR/AR tools, and motion analysis equipment	Deeper aesthetic engagement and sensory stimulation
Learning environment	Incorporate cultural content	Integrate music traditions, symbolic movement, and choreographic heritage	Broadened cultural and aesthetic awareness
Curriculum design	Introduce aesthetic learning activities	Performance analysis, choreography projects, and reflective tasks	Students develop independent artistic interpretation
Assessment reform	Adopt process-oriented evaluation	Formative assessments, peer reviews, and self-reflection portfolios	Improved motivation and metacognitive development

Assessment reform	Expand student participation	Include peer and self-assessment as formal evaluation components	Greater ownership of aesthetic learning process
Practical extension	Diversify experiential contexts	Performances, competitions, community events	Authentic application of technical and artistic skills

Limitations and Future Research Directions

This study is subject to several limitations. As a narrative review, it does not apply the systematic search protocols and quantitative synthesis characteristic of meta-analyses. The majority of reviewed literature draws on the Chinese higher education context, which may limit the direct transferability of findings to other educational systems. The proposed framework is analytically derived rather than empirically validated. Future research should prioritize experimental or quasi-experimental studies testing the effectiveness of specific interventions — VR-enhanced environments, AI-driven formative feedback, or interdisciplinary instructor training — against measurable aesthetic development outcomes. Comparative cross-cultural research would help identify which framework elements are universally applicable.

Conclusion. This study has examined the structural and pedagogical barriers inhibiting the cultivation of artistic appreciation in college aerobics teaching and has proposed an integrated framework for reform grounded in a systematic review of recent scholarship and policy developments. The analysis confirms that current teaching practices are constrained by instructor competency gaps, inadequate learning environments, underutilized digital tools, and reductive assessment models.

The proposed framework addresses these barriers through three coherent reform directions: developing instructors' aesthetic literacy and digital pedagogical skills; creating technology-enhanced, culturally enriched learning environments; and implementing formative, process-oriented assessment systems. Taken together, these strategies offer a practical pathway for transforming aerobics instruction from a technique-focused exercise into a holistic educational experience. Realizing this transformation requires sustained commitment at multiple levels — from individual instructors and curriculum designers to institutional administrators and national policy bodies.

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БОЛАШАҚ ДЕНЕ ШЫНЫҚТЫРУ МҰҒАЛІМДЕРІНІҢ КӘСІБИ ҚҰЗЫРЕТТІЛІГІН ҚАЛЫПТАСТЫРУДАҒЫ АНАТОМИЯЛЫҚ НЕГІЗДЕЛГЕН ДЕНЕ ЖАТТЫҒУЛАРЫНЫҢ МАҢЫЗЫ

Аңдатпа

Болашақ дене шынықтыру мұғалімдерін кәсіби даярлауда анатомия ғылымының маңыздылығы мен дене жаттығуларының ағза жүйелеріне әсері жан-жақты қарастырылады. Бұл мақалада адам анатомиясының негізінде дене жаттығуларының тиімділігі мен олардың дене шынықтыру мамандығында оқитын студенттердің кәсіби дамуындағы рөлі қарастырылады. Қаңқа-бұлшықет жүйесінің қызметі, жаттығулардың физиологиялық әсері мен анатомиялық ерекшеліктері теориялық және практикалық тұрғыда талданады. Адамның тірек-қимыл аппараты мен бұлшықет жүйесінің құрылымдық ерекшеліктері, сондай-ақ түрлі қозғалыстардың физиологиялық тиімділігі мен қауіпсіздігін қамтамасыз етуде анатомиялық білімнің рөлі талданады. Мақалада білім алушылардың ғылыми көзқарасын қалыптастыру, дене жаттығуларының ғылыми негізделген әдістерін меңгеру және оны кәсіби қызметте дұрыс қолдану жолдары ұсынылады.

Мақала дене тәрбиесі және спорт мамандығы бойынша оқитын студенттерге, оқытушыларға және әдіскер мамандарға арналған. Бұл мақалада қаңқа-бұлшықет жүйесінің адам ағзасындағы рөлі, дене жаттығуларының анатомиялық әсері және дене шынықтыру саласындағы кәсіби дайындықтағы маңызы қарастырылады. Анатомиялық білімдерді болашақ дене шынықтыру мұғалімдерінің кәсіби құзыреттілігін дамыту құралы ретінде қолдану жолдары сипатталған.

Бұл мақалада дене жаттығуларының анатомиялық негіздері мен олардың студенттердің кәсіби даярлығындағы маңызы қарастырылған. Адам ағзасының қозғалыс аппаратының құрылымы мен қызметі, бұлшықеттердің, буындар мен сүйек жүйесінің жаттығулар кезіндегі рөлі талданады. Сонымен қатар, дене жаттығуларының физиологиялық және психологиялық әсерлері сипатталып, кәсіби дайындық сапасын арттырудағы орны айқындалады. Зерттеу нәтижелері болашақ мамандардың дене тәрбиесі мен кәсіби құзыреттілігін қалыптастыруда анатомиялық білімнің маңыздылығын дәлелдейді.

Түйін сөздер: бұлшықет, қаңқа, кәсіби даярлық, дене жаттығулары, қозғалыс аппараты, студент.