

The Alienation of Creativity, Aesthetic Homogenization, and Their Governance in AI-Driven Music Education

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Abstract. The deep integration of generative artificial intelligence and music education has demonstrated unprecedented instructional efficiency. However, beneath this technological empowerment lies a profound crisis. This paper focuses on two major issues emerging from AI-enhanced music teaching: the alienation of creativity and aesthetic homogenization. Creative alienation reduces students from artistic subjects to mere prompt-input operators, while artistic exploration and emotional experience are increasingly replaced by algorithms. Aesthetic homogenization, driven by the commercial bias embedded in model training, pushes outputs toward an “average aesthetic,” thereby suppressing musical diversity and cultural individuality. Drawing upon educational ethics and theories of arts education, this study upholds the humanistic core of music education and seeks to redefine the relationship between artificial intelligence and learners, ensuring that technology genuinely serves artistic creation rather than replacing the creative subject. The paper aims to provide theoretical references for the human-centered restoration and sustainable development of music education in the age of artificial intelligence.

Keywords: Artificial Intelligence; Music Education; Creative Alienation; Aesthetic Homogenization; Educational Ethics.

1. Introduction

The rapid development of artificial intelligence is profoundly reshaping modes of social production and economic structures. While stimulating innovation and reconstructing industrial competition, it also raises critical questions: the essence of music education lies in cultivating aesthetic ability, creative spirit, and humanistic literacy, but does its integration with technology ultimately result in the production of standardized musical products? Educational ethics emphasizes the principles of student-centered learning, humanistic priority, fairness and diversity, and respect for originality. Yet when AI erodes creative subjectivity in the name of efficiency and simplifies the complexity of aesthetics through algorithmic logic, it not only violates the principles of arts education but also undermines students’ creativity, cultural identity, and ethical judgment. This poses a serious challenge for music education in the contemporary era: how can future music professionals develop the core competencies needed to master technology while preserving the essence of art in an algorithm-driven age?

This paper analyzes both the technological logic and educational risks associated with AI in music teaching, with a particular focus on the problems of creative alienation and aesthetic homogenization. Through an ethical lens, the study seeks to promote the transformation of AI from a mere “efficiency tool” into an “educational medium,” ensuring that music education maintains its humanistic foundation and cultural diversity amid technological empowerments.

2. Application Scenarios and Current Development of AI in Music Education

Artificial intelligence is becoming deeply embedded in music education through pathways such as skill training and classroom collaboration, covering intelligent performance evaluation, automatic accompaniment and harmonic analysis tools [1] While improving efficiency and lowering barriers to access, it also exposes deeper contradictions in which technological rationality suppresses humanistic expression and algorithmic preferences obscure aesthetic diversity.

2.1. Skill Training: Precision and Efficiency at the Expense of Expressive Subjectivity

Real-time performance analysis tools built upon artificial intelligence have largely replaced teachers' manual diagnostic work in instrumental music classrooms [2]. Such intelligent teaching devices transmit live audio streams and generate precise visualized metrics of pitch and rhythmic deviations, effectively mitigating shortages of qualified music instructors and offering students in under-resourced regions accessible channels for independent after-class practice. On the surface, this data-driven feedback framework advances educational equity in foundational musical skill instruction.

Nevertheless, labeling automated evaluation tools solely as instruments that stifle artistic individuality leads to the binary reasoning characteristic of technological determinism. A compelling piece of empirical evidence comes from the final assessment system for piano majors at a Japanese university. One student delivered an idiosyncratic interpretation of a Chopin nocturne, employing fluid rubato and nuanced, staggered legato articulation to amplify emotional intensity. The AI platform, however, flagged the performance as rhythmically erratic and dynamically unregulated, assigning it a low quantitative score. This case lays bare the structural flaws of data reductionism: statistical algorithms are only capable of quantifying tangible acoustic measurements, yet fail to capture the profound historical context, deliberate expressive pauses, and subjective emotional logic embedded within musical interpretation.

AI evaluation systems are not impartial auxiliary tools. Under the guise of objectivity, they subtly restructure the criteria for judging musical performance, shifting evaluative logic away from "supporting individual artistic development" toward "conforming to algorithmic statistical norms." If schools treat zero measurable data error as the sole benchmark of flawless performance, music education will gradually abandon its core mission of cultivating independent artistic creators.

2.2. Classroom Collaboration: Improving Efficiency While Intensifying the Teaching "Comfort Zone"

"The results show that, compared with traditional teaching models, music education based on an AI background has high satisfaction among students, teachers, and parents" [3]. The study argues that AI significantly reduces teachers' instructional burden, while systematic platform-based teaching enhances classroom engagement. In reality, however, AI is quietly reshaping students' aesthetic structures, and behind its efficiency lies the risk of pedagogical imbalance. Some classrooms excessively pursue technological display, treating AI as a "highlight" of the curriculum while neglecting the essential purpose of education. Teachers increasingly rely on AI evaluations and abandon qualitative judgments regarding students' emotions and creativity.

Such an efficiency-oriented approach, driven by data metrics, compresses the space for aesthetic exploration that music education should provide. As a result, "personalized learning" paradoxically leads students into the cage of "algorithmic homogenization," thereby violating the ethical commitment of music education to promote multicultural understanding and inclusivity.

3. Manifestations and Underlying Causes of Creative Alienation in AI-Driven Music Teaching

3.1. Alienation of Creative Subjects: The Dissolution of Agency and Reduction to Algorithmic Executors

From the perspective of educational governance, the comprehensive integration of Artificial Intelligence into the entire pedagogical spectrum—ranging from classroom instruction to academic evaluation—is far from a simple upgrade of instructional tools. Rather, it represents a profound disruption of the traditional educational order, pedagogical logic, and administrative paradigms.

Taking AI composition tools such as Suno, Udio and AIVA, which are representative generative teaching platforms summarized by Wei et al. [2], students can now generate structurally complete and standardly orchestrated tracks within seconds simply by inputting "emotion + genre + tempo"

prompts. While this superficially lowers the barrier to entry and boosts efficiency, it fundamentally compresses the creative labor of "musical ideation, trial-and-error revision, and emotional projection" into a consumerist behavior of "parameter tuning and output filtering." Consequently, this paper argues that clear boundaries between human and machine creativity must be enforced by setting strict limits on the stages and extent of AI utilization. This is crucial to prevent students from relying on AI to rapidly produce pieces that merely satisfy formal examination criteria, while simultaneously losing their auditory perception of harmonic tension and their capacity for logical reasoning in motivic development.

3.2. Alienation of Pedagogical Processes: The Hollowing Out of Instructional Forms and the Absence of Skill Training

Music classrooms are currently undergoing a "frictionless" procedural transformation, where the acquisition of skills—which originally demanded long-term immersion, iterative trial-and-error, and embodied experience—has been reduced to a mechanistic logic of "input-recognition-feedback-mastery."

On the other hand, the instructional workflow for educators has also become alienated. To reduce lesson-planning demands and comply with digitalization mandates, some teachers directly utilize AI-generated courseware and assemble lesson designs while neglecting the actual learning status of their students. As a result, classroom teaching degenerates into a mere accumulation of AI-sourced materials, leading to a deficiency in targeted instructional guidance and a sharp decline in pedagogical interactivity and professionalism. Critical reflection is required to assess whether reducing pedagogical practice to data-centric performance tracking aligns with the foundational missions of music education, and whether the erosion of substantive instructional expertise constitutes a sustainable direction for arts teaching practice.

4. The Dilemma of Aesthetic Homogenization and Its Cultural Concerns

Aesthetic homogenization fundamentally undermines the cultural foundations and aesthetic tension of musical art. Beneath the guise of "technological neutrality", the widespread adoption of generative AI in music education surreptitiously imposes a standardized aesthetic paradigm, giving rise to profound cultural concerns.

4.1. Algorithmic Probabilistic Logic and the Hegemony of "Average Aesthetics"

Generative AI operates on an underlying framework built upon probabilistic prediction across massive datasets and the minimization of loss functions. Chen and Sun [4] verified through Transformer-based music generation experiments that deep learning models prioritize statistically mainstream musical features when generating outputs, resulting in weak modelling capacity for emotional and idiosyncratic musical expression. At the introductory stage of music instruction, this probabilistic logic undeniably delivers substantial pedagogical utility. For instance, in foundational arranging or harmony coursework, AI tends to output high-probability harmonic progressions and formal structures, enabling novice learners to rapidly internalize the grammatical conventions of specific musical styles and lowering the initial cognitive burden of composition. That said, once these statistically derived "optimal solutions" overstep into advanced composition and personalised artistic expression, the limitations of instrumental rationality morph into the hegemony of "average aesthetics," posing tangible threats to the plurality of artistic creation.

This hegemony is not merely an abstract theoretical conjecture; it manifests concretely through micro-level power dynamics unfolding within contemporary music classrooms. A case in point comes from the final assessment task of a university's Digital Music Creation module, where instructors tasked students with producing experimental film soundtracks using generative AI tools including AIVA and Suno. Classroom observations and compositional analyses reveal that works produced through overreliance on AI uniformly exhibit excessive auditory smoothness: impeccable intonation,

rigid 4/4 metric pulse, and functional harmonic resolutions aligned with mainstream aesthetic norms. When some students attempted to integrate dissonant, unconventional sound textures into their pieces, however, the AI systems routinely forced these experimental elements into consonant chords or reverted them to stable rhythmic patterns. Confronted with such algorithmic pushbacks, the majority of students ultimately capitulated, opting instead for the polished yet formulaic alternatives proffered by the models.

Consequently, the hegemony of average aesthetics does not merely reduce music education to an assembly line churning out standardised sonic commodities; it fundamentally reshapes evaluative benchmarks for what constitutes strong musical work. Large-scale empirical research on digital music production confirms that mass-oriented audio tools produce overlapping, uniform sonic templates that erase timbral and rhythmic diversity across musical works [5]. Marginal, experimental, and culturally heterogeneous musical elements—content that probabilistic models cannot encode—gradually lose legitimate standing under the algorithmic gaze.

4.2. Biased Training Data and the Erosion of Cultural Diversity

AI models' aesthetic inclinations are rigidly shaped by the training datasets fed into their mechanical learning frameworks. The training corpora of mainstream commercial generative AI music systems draw overwhelmingly from mainstream pop, Western classical works, and heavily commercialized copyrighted music libraries concentrated within Western cultural spheres. This lopsided data architecture inevitably engenders algorithmic bias and covert cultural hegemony. Within music teaching practice, students leveraging AI for compositional support are subtly steered toward adopting harmonic progressions and orchestration techniques characteristic of commercial pop music.

Take *The Sun Rises, Full of Joy*, a representative piece of Shizhu Tujia Lu'er Tune listed as national intangible cultural heritage, as an example. This work is a labor folk song passed down for generations among the Han and Tujia peoples in Bayu. It preserves the collective memory of multi-ethnic coexistence and joint labor in mountainous eastern Chongqing, serving as a typical musical carrier for advancing ethnic cultural integration and fostering the shared spiritual home of the Chinese nation.

The original Lu'er Tune boasts unique acoustic features distinct from pop music: it opens with free unmeasured phrases to unfold emotions, interspersed with Tujia dialect refrains such as “luo'er”. Its phrases vary in length with flexible rhythms, and a pentatonic Shang mode shapes its resonant, unadorned regional timbre. Such auditory hallmarks brimming with folk improvisation and ethnic cultural markers are rarely seen in mainstream AI training datasets, and algorithms frequently label them as “acoustic outliers” to standardize and flatten their uniqueness.

This study carries out controlled experiments in music classrooms. Identical prompts asking for full restoration of the song's original style were fed into Suno and AIVA, two mainstream generative AI tools. The AI outputs exhibit three layers of cultural alienation.

First, algorithms eliminate free unmeasured openings and lock the piece into rigid 4/4 time, erasing the improvisational core rooted in working rhythms of Tujia folk songs. Second, distinctive dialect refrains are cut out and replaced with generic pop lyrical lines, stripping the folk song of its unique Tujia dialect narrative. Third, the indigenous Shang- mode melody is diluted and overlaid with commonplace pop harmonies, turning this highly recognizable heritage folk song into a homogenized template work.

Long-term classroom observations confirm the tangible harms of algorithmic aesthetic conditioning. When students listened side-by-side to the AI arrangement and the authentic rendition by heritage inheritors for the first time, most regarded the standardized AI output as “rhythmically regular and pleasant”, while dismissing the original version with improvisational flexibility and dialect refrains as “messy and unpolished”. This cognitive bias lays bare how the hegemony of “average aesthetics” reshapes adolescents' aesthetic judgment. Using statistically dominant acoustic features as its benchmark, algorithms automatically filter and revise unique cultural symbols of ethnic

folk music. Long-term exposure will gradually dull young people's perception of the cultural characteristics of Bayu's multi-ethnic folk music and narrow their ethnic aesthetic horizons.

5. Governance Pathways Toward a Human-Centered Return

Before unpacking targeted governance strategies, it is critical to rigorously interrogate the rationality behind the unrestricted adoption of AI advocated by technological determinism and AI accelerationism. The dual-sided impact of generative AI on education has sparked widespread academic debate over whether such tools serve as educational assets or threats [6]. Yet this ostensibly compelling narrative of technological egalitarianism masks profound ethical and cultural crises within educational practice.

From an educational ethics perspective, creative workflows stripped of struggle, iterative trial and error, and deliberate technical refinement deprive learners of opportunities to build embodied artistic cognition. This line of reasoning conflicts with the right to artistic expression with the capacity for meaningful creation, ultimately hollowing out students' creative agency. When examined through the lens of cultural diversity, unregulated reliance on generative models trained predominantly on mainstream commercial datasets advances implicit cultural hegemony under the guise of technological equity. Such systems force the globe's pluralistic musical ecosystems into a narrow, singular statistical probability distribution.

5.1. Ethical Anchoring: Re-establishing Human-Centered Educational Subjectivity

The primary prerequisite for effective governance is to set the ethical bottom line of human-AI collaboration and human prioritization. Educational ethics constitutes the fundamental restrictive framework for the deployment of all instructional technologies [7], so all AI application rules in music classrooms must be built around human artistic subjectivity. In line with China's Ministry of Education Standards for Teachers' Digital Literacy and global consensus on AI ethics in education, it is critical to clarify the role of AI in music teaching: AI is never meant to replace human educators or learners. Teachers shall help students develop a clear awareness of the boundaries between humans and AI. While AI can handle repetitive tasks such as timbre rendering and basic arrangement, the core musical motivation, emotional expression and meaning construction must be accomplished by students themselves as the principal agents. Throughout this process, educators must guard against the efficiency-first trap and deliberately preserve and amplify cognitive friction within creative workflows. Safeguarding artistic value against the erosion of generative algorithms is the core foothold of music education digital reform [8]. Such resistance and iterative trial and error constitute the indispensable path toward the maturation of artistic cognition.

Curriculum design should integrate technological reflection into learning objectives. This fosters students' digital literacy to master algorithms rather than be enslaved by them, ensures that technology truly facilitates the development of students' artistic minds, and upholds humanity's supreme subject status in artistic creation.

5.2. Pedagogical Breakthrough: Building Anti-Algorithmic and Cross-Cultural Aesthetic Experiences

To break free from the confinement of aesthetic homogenization, music education needs to adopt anti-algorithmic design and reshape aesthetic experiences. First, trial-and-error and interference mechanisms can be integrated into creative teaching. Drawing on the intelligent aesthetic curriculum innovation framework proposed by Li and Sun [9], teachers can design targeted disassembly and reconstruction tasks for AI musical works. Students are encouraged to input unconventional or non-standard prompts, or to deconstruct, collage and rework AI-generated outputs. Second, educators should prioritize embodied cultural practice. More algorithm-resistant hands-on activities, such as fieldwork for ethnomusicology and impromptu ensemble performances of world music, should be incorporated into curricula. Rooted in real-life contexts, humanistic settings and cross-cultural

exchange, these practices counteract the homogenizing tendency of virtual data and deepen students' perception of diverse cultural beauty.

5.3. Assessment Restructuring: A Multi-Dimensional Qualitative Evaluation Framework Beyond Data Rationality

Assessment acts as the compass of teaching. It is imperative to abandon the one-dimensional evaluation system of accuracy and compliance championed by AI practice tools, and establish a multi-dimensional qualitative evaluation framework that transcends data rationality. The integrated development model of artificial intelligence and teachers' professionalism clarifies that assessment reform should be taken as a core training module for teachers' digital competency [8]. Evaluation should shift from a result-oriented model to a process-oriented one, with the adoption of creative process portfolios. Within assessment rubrics, greater weight shall be assigned to qualitative criteria, including emotional expressiveness, contextual cultural understanding, creative intentions, and critical decision-making during human-AI collaboration. When evaluating instrumental and vocal performances, teachers should embrace and encourage students' personalized interpretations and subtle emotional nuances beyond rigid pitch and rhythm standards. In this way, assessment can return to its educational mission, rather than functioning as impersonal mechanical inspection.

6. Conclusion

In sum, the tension between technical efficiency and artistic humanism within AI-enhanced music instruction extends far beyond pedagogical disagreements alone. It evolves into a profound interrogation of musical ontology and human creative subjectivity amid the algorithmic age. This study reframes creative alienation and aesthetic homogenisation not merely as minor technical flaws in instructional practice, but as systemic erasures of human artistic embodiment, cultural heterogeneity, and the beauty of imperfection perpetuated by data-driven reductionism.

Accordingly, the governance frameworks advanced in this paper reject outright technological Luddism—the blind, blanket rejection of technological tools—in favour of an innovative paradigm of critical human-AI symbiosis. Within this framework, AI is stripped of its omnipotent veneer and repositioned as a dialectical provocateur that sparks critical reflection. By laying bare the inherent limits of average aesthetics rooted in probabilistic logic, algorithmic systems compel students to reclaim creative agency, embrace aesthetic friction, and safeguard their cultural subjectivity.

The ultimate mission of future music education is not to train learners to compete against the generative speed of algorithms, but to cultivate aesthetic dissenters equipped with robust critical digital literacy. Only by reanchoring music education around human vulnerability, ethical self-reflection, and cultural self-awareness can educators ensure technology remains an instrument that expands humanistic artistic expression, rather than an architect overseeing the erasure of the artistic subject.

References

- [1] Yu, H., Zhang, L., & Zhao, M. (2023). Intelligent accompaniment and harmonic analysis tools for instrumental teaching. *Journal of Digital Music Education*, 5(2), 22–30.
- [2] Wei, J., Karuppiah, M., & Prathik, A. (2022). College music education and teaching based on AI techniques. *Computers and electrical engineering*, 100, 107851.
- [3] Mao, Q. S. (2022). Student satisfaction with AI-assisted music classroom teaching. *Journal of Arts Education*, 9(3), 78–85.
- [4] Chen, Y., & Sun, Y. (2024). The usage of artificial intelligence technology in music education system under deep learning. *Ieee Access*, 12, 130546–130556.

- [5] Faure-Carvallo, A., Gustems-Carnicer, J., & Guaus Termens, E. (2022). Music education in the digital age: Challenges associated with sound homogenization in music aimed at adolescents. *International Journal of Music Education*, 40(4), 598–612.
- [6] Jiao, J. L. (2023). ChatGPT: Friend or foe of school education? *Modern Educational Technology*, 33(4), 5–15.
- [7] Gülcan, M. (2015). Educational ethics is a regulatory framework for instructional technology. *Journal of Educational Philosophy*, 18(2), 41–57.
- [8] Wang, P., & Li, X. B. (2026). Research on the integrated model of artificial intelligence and teachers' professional development for future education. *Technology Wind*, (12), 144–146.
- [9] Li, Y., & Sun, R. (2023). Innovations of music and aesthetic education courses using intelligent technologies. *Education and Information Technologies*, 28(10), 13665–13688.
- [10] Wang, X. X. (2026). Transformation paths and value retention of music education under generative artificial intelligence. *Portrait Photography*, (6), 138–140.
- [11] Yuan Li. (2022). The Development and Application of Artificial Intelligence Technology in the Field of Music Education. (eds.) *Proceedings of 2022 the 6th International Conference on Scientific and Technological Innovation and Educational Development* (pp.855–857). School of Music & Dancing, Lingnan Normal University;