

AI Literacy in Senior High School Art Education: Conceptualization, Dimensions, and Approaches to Development

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Abstract: Generative artificial intelligence (AI) has transformed the generation, modification, and presentation of images in senior high school art classrooms and brought students' aesthetic judgment into greater prominence. Establishing dialogue among the *Curriculum Standards for Art in General Senior High Schools*, AI-literacy frameworks, and visual-culture education research, this paper adopts conceptual analysis and curriculum-context analysis. It defines AI literacy in senior high school art education as subject-specific literacy with which students understand generation mechanisms when confronting AI-generated images, express aesthetic intentions, engage in human-AI collaboration, and clarify creative responsibilities. Accordingly, four dimensions are proposed: aesthetic judgment of AI-generated images, translation of aesthetic intentions, collaborative creation with AI, as well as communication and interpretation of AI-produced works. Instead of setting up separate tool-oriented courses, the cultivation path should be embedded into existing modules such as art appreciation, modern-media art, painting, and design.

Keywords: Senior High School Art Education; AI literacy; Generative artificial intelligence; Aesthetic judgment; Human-AI collaboration

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1. Introduction

After generative artificial intelligence (AI) entered senior high school art classrooms, the threshold for image production has dropped significantly ^[1]. Students can use AI image tools to generate composition drafts, and teachers apply such outputs for idea stimulation, process documentation, and work discussions. Nevertheless, fast image generation does not equal valid aesthetics; being able to input prompts does not mean completing art learning. Classrooms need to prompt students to reflect on how to judge images, revise outputs, and justify their selections.

The *Curriculum Standards for Art in General Senior High Schools* identify image reading, art

expression, aesthetic judgment, creative practice, and cultural understanding as core subject-specific literacies, providing curriculum foundations for AI-image-oriented teaching ^[2-4]. When facing AI-generated images, students need to answer whether image forms serve themes, whether stylistic sources are clear, how to make trade-offs between model outputs and personal conceptions, and how to specify the scope of AI participation in presentations.

This paper centers on three research questions. First, what are the differences between AI literacy for senior-high-school art education, general AI literacy, digital literacy, and media literacy ^[5,6]? Second, what competencies should this literacy contain, and how do these competencies connect with one another? Third, how can existing senior-high-school art curricula accommodate these competencies, without turning AI learning into tool-training detached from art-education objectives?

2. Literature sources, analytical methods, and research gaps

This paper is a theoretical-construction study adopting conceptual analysis and curriculum-context analysis. Three categories of representative documents are included: frameworks of AI literacy and student AI competencies, senior-high-school art curriculum standards and visual-culture-based art education, as well as AI-related social ethics and teachers' knowledge structures. It aims to identify subject-specific competencies students should develop after AI image tools are introduced into art classrooms.

Duri Long and other scholars define AI literacy as understanding, using, and evaluating AI with ethical awareness ^[7]. The UNESCO framework highlights human-centeredness and ethics ^[8]. Most of such research targets general learners, with insufficient discussion on aesthetic judgment of AI-generated images, work-generation procedures, and public interpretation. Art-education studies offer another line of reference ^[9,10]. Visual-culture art education and the U.S. National Core Arts Standards remind us that once AI-generated images enter classrooms, art learning should not merely assess final outputs; it should also examine how students view, select, transform, and interpret images ^[11].

Hence emerges the research gap: general AI-literacy frameworks can describe general competencies for the AI era, yet cannot handle aesthetic judgment and visual communication; core art literacies can articulate subject-specific educational goals, but need to respond to new scenarios brought by AI-transformed image-production mechanisms. This paper attempts to build a bridge between the two and redefine AI literacy based on learning tasks within senior-high-school art curricula.

3. Concept definition of AI literacy in senior high school art education

This paper defines AI literacy in senior-high-school art education as subject-specific literacy: in contexts where artificial intelligence participates in visual-cultural production, students are capable of understanding basic mechanisms of AI-image generation, maintaining aesthetic judgment, articulating and adjusting their own aesthetic intentions, engaging in human-AI collaborative creation, and accounting for procedures, boundaries, and responsibilities of works involving AI participation.

This definition originates from real-world classroom problems. For instance, after students generate multiple images under the theme "Future City," what truly needs judging is not which image looks most exquisite, but which one better supports the theme, which visual elements derive from model default styles, and which parts require further student-performed hand-drawing, photography, or layout design. Students

also need to explain how prompts are revised, why certain elements are retained, and what differences exist between AI-generated outputs and final works.

Therefore, AI literacy for senior-high-school art differs from general information-technology competencies. Digital literacy focuses on information processing via digital tools; media literacy focuses on production and reception of media messages; general AI literacy focuses on understanding, utilization, and evaluation of AI systems. AI literacy for senior-high-school art has a narrower and more concrete scope: visual images under AI conditions, aesthetic intentions, work generation, presentation and interpretation.

This literacy centers on aesthetic subjectivity. Artificial intelligence can generate images, yet it cannot decide whether a work carries meaningful value for students, nor can it take over students' responsibilities for creative explanation and communication. Art education should enable students to keep judgment in their own hands, treat AI as a medium for proposing possibilities, instead of regarding model outputs as ready-made works.

4. Constituent dimensions of senior high school art-oriented AI literacy

Based on the above definition, four constituent dimensions are proposed: competency for aesthetic judgment of AI-generated images, competency for translation of aesthetic intentions, competency for AI-assisted collaborative creation, and competency for communication and interpretation of AI-involved works. They correspond to student workflows with AI image tools: interpreting and judging images, translating generation prompts, screening and revising outputs, and specifying AI involvement and human contributions. See **Table 1**.

Table 1. Four-Dimensional Framework of AI Literacy in Senior High School Art Education

Dimension	Guiding questions	Evidence of learning	Curriculum area
Aesthetic judgment of AI-generated images	How well do the generated images support the intended theme?	Comparative analyses and written explanations of aesthetic judgments	Art appreciation
Translation of aesthetic intentions into AI inputs	How can visual goals be expressed through inputs that AI systems can process?	Successive prompts, visual references, and explanations of image changes	Modern media art
Human-AI collaborative creation	How can model outputs be developed into students' artworks?	Process portfolios and records of student revisions	Painting, design, and integrated art projects
Communication and interpretation of artworks created with AI	How can students explain AI involvement and their own contributions?	AI-use statements, artwork statements, and records of presentations and Q&A discussions	Presentation and assessment

4.1. Competency for aesthetic judgment of AI-generated images

Competency for aesthetic judgment of AI-generated images refers to students' capacity to judge formal quality, meaning expression, stylistic sources, and cultural contexts when confronting AI-generated images. Senior-high-school art classrooms should not stop at identifying "whether an image is AI-generated"; teachers need to guide students to discuss whether images genuinely serve thematic purposes.

In appreciation activities, teachers place AI-generated images, classic artworks, and student-produced images side-by-side. Students compare composition, color, light-and-shade, and texture. They also analyze whether symbols are vacuous, whether styles are merely patchwork, and whether cultural elements are oversimplified. Students shall form a basic awareness: high technical perfection does not equal high aesthetic quality.

4.2. Competency for translation of aesthetic intentions

Competency for translation of aesthetic intentions means students convert visual imaginations into AI-responsive texts, image references, and iterative strategies. Prompts should not be understood as keyword stacking; instead, they represent visual-language training: students need to articulate themes, perspectives, tones, textures, emotions, and compositional relationships, and adjust expressions according to generated outputs.

This competency is generally demonstrated by proposing visual goals, observing output deviations, and revising instructions. For assessment purposes, students shall preserve prompt versions and records of image changes. Ethical reflections should be incorporated synchronously. Discussions on fairness, transparency, privacy, and responsibility from AI-social-governance research provide necessary references for classroom reflections ^[12].

4.3. Competency for AI-assisted collaborative creation

Competency for AI-assisted collaborative creation focuses on transforming model outputs into student-authored works. Students may use AI to generate partial materials or stylistic references, yet final works require selection, reorganization and revision. The term “collaboration” here emphasizes that models supply possibilities, while students take charge of orientations, trade-offs, and meaning construction.

Assessment of this competency shall not merely depend on whether final images look refined. More valuable evidence includes statements of creative intentions, prompt versions, rationales for selecting AI-generated materials, manual-revision records and interpretations of final works. Process archives render students’ implicit judgments visible and prevent AI from replacing creative workflows.

4.4. Competency for communication and interpretation of AI-involved works

Competency for communication and interpretation of AI-involved works means that when presenting or publishing works created with AI participation, students can specify AI-involved procedures, communication contexts, and their own contributions, and respond to questions concerning originality, authorship, and responsibility boundaries. As image-generation costs decrease, interpretive responsibilities become more prominent in work presentations.

In classroom presentations, students may adopt work statements to specify whether AI is applied for idea generation, background materials, partial revisions, or main-image production. They may also explain why they choose different presentation forms such as posters, short-video clips, display boards or classroom reports. Interpretation is not an appendix after work completion; it constitutes a link for students to reaffirm their aesthetic stances and creative responsibilities ^[13].

5. Internal relationships among the four-dimensional framework

The four dimensions do not form a simple parallel checklist; they represent a learning workflow. Aesthetic judgment supplies criteria for students’ trade-offs; intention translation converts such judgments into human-AI interactions; collaborative creation transforms generated outputs into personal works; communication and interpretation enable students to justify their selections in public exchanges.

This workflow may loop back to previous stages. Peer doubts during presentations may push students to re-examine boundaries of AI participation; failed creation may require revisiting prompts and visual schemes; failure to write proper work interpretations may reveal insufficient prior judgments and supporting evidence. AI literacy is cultivated through such repeated revisions, rather than completed via a single tool-operation task.

6. Cultivation paths and curriculum embedding

For senior-high-school-oriented AI literacy in art education, establishing an independent tool-oriented course is inadvisable. A more feasible solution is embedding the four dimensions into existing curriculum modules, and shifting assessment emphasis from “what images are generated” toward “how students judge, adjust, integrate and interpret.”

First, carry out a comparative analysis of AI-generated images within the Art Appreciation module. Teachers may set multi-category image materials under identical themes, and require students to compare formal and meaning-related differences among AI-generated images, classic artworks, student works, and real-world visual materials. Assess whether students can justify why images are valid or invalid, instead of asking them to guess image sources.

Second, train translation of aesthetic intentions within the Modern-Media Art module. Students iterate prompts around given themes and record image variations brought by descriptive revisions. Teachers may ask students to specify problems addressed by each revision, such as ambiguous themes, imbalanced composition, over-dominant styles, or inappropriate use of cultural symbols.

Third, build AI-assisted collaborative-creation process archives for painting, design and integrated-creation projects. When submitting works, students shall hand in creative intentions, AI output samples, rationales for material selection, manual-revision records, and final-work interpretations. In this way, students’ judgments and manual labor become traceable, and boundaries of AI utilization enter assessment scope.

Fourth, establish AI-usage annotations and work-statement requirements in Presentation & Evaluation sessions. When presenting AI-collaborative works, students shall specify AI-participation extents, manual-intervention approaches, and grounds for aesthetic selections. Teachers may organize peer questioning sessions for students to respond to questions over work originality, authorship, and responsibility boundaries.

Teachers’ professional development shall support the above-mentioned task design. Senior-high-school art teachers do not necessarily need to master complex model principles, yet they need to understand basic AI-image-generation mechanisms, common biases and ethical issues, and integrate technical understandings, subject content and teaching tasks. Discussions on integration of technology, pedagogy and content knowledge within the TPACK framework offer references for teacher training^[14,15]. See **Table 2**.

Table 2. Approaches to Integrating AI Literacy into Senior High School Art Education

Curriculum area	Focus of integration	Teaching activities	Assessment criteria
Art appreciation	Aesthetic judgment of AI-generated images	Compare AI-generated images, established artworks, student artworks, and images from everyday visual culture	Explain visual form, meaning, and cultural context
Modern media art	Translation of aesthetic intentions into AI inputs	Develop successive prompts around a shared theme and compare the resulting images	Explain the intended purpose of prompt revisions and the observed image differences
Painting and design	Human-AI collaborative creation	Use AI to generate preliminary designs or visual materials, then select, integrate, and revise them	Submit process portfolios and explain students’ creative contributions
Presentation and assessment	Communication and interpretation of artworks created with AI	Disclose AI involvement, prepare artwork statements, and respond to peer questions	Address originality, authorship, and responsibility in relation to the work

7. Conclusion

After generative AI is introduced into senior-high-school art education, students need to develop not mere tool-operation skills, but integrated competencies for judging, translating, creating and interpreting AI-related images. This paper connects AI-literacy research with core art literacies and visual-culture education, and puts forward the four-dimensional framework for AI literacy in senior-high-school art education.

The significance of this framework lies in that it transforms technical understanding, tool-utilization, and ethical responsibilities from general AI-literacy theories into concrete art-learning tasks. Meanwhile, it re-interprets aesthetic judgment, creative practice and cultural understanding under new circumstances of AI-image generation and communication. It helps avoid two biased tendencies: reducing AI literacy to prompt-engineering skills, or excluding artificial intelligence entirely from art curricula.

This paper remains a theoretical-construction study. Follow-up research needs to be implemented in real-world classrooms. Combined with student works, prompt versions, process archives, and presentation-defense records, researchers shall test whether this four-dimensional framework can be converted into stable assessment tools and instructional-design schemes.

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