Research in Arts Education (2025), 50, 112-150.
DOI:10.6622/RAE.202512_(50).0004

Teaching Practice of Visual Thinking Strategies in Medical Humanities Education

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Summary

Visual thinking strategies (VTS) is a structured, museum-based pedagogy grounded in three open-ended prompts: “What’s going on in this picture?”, “What do you see that makes you say that?”, and “What more can we find?” Integrating the arts into medical education can foster medical students’ personal growth and professional development.

In Taiwan, although some medical schools incorporate art-related activities, the systematic design and implementation of VTS remain limited. The work represents the first systematic and locally contextualized implementation of VTS within Taiwanese medical humanities education and proposes a replicable, mixed-methods approach for selecting, sequencing, and verifying images for VTS use. This study investigated three questions: (1) How do Taiwanese medical students experience a medical education course integrating VTS? (2) Through VTS, how do medical students interpret and respond to the learning themes conveyed by images? (3) Within Taiwan’s medical education context, what are the feasibility and prospective developments of VTS as an innovative teaching model in medical humanities?

The intervention was conducted from September 2024 to May 2025 through nine monthly, 90 minute sessions. Each session engaged a group of three to four students in three VTS discussions, allotting approximately 30 minutes per artwork. Thirty-three fifth-year medical students, 12 men and 21 women, participated. Over the course, 27 paintings were curated according to VTS image-selection principles and distributed across six humanities learning themes that instructors sought

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Paper accepted October 9, 2025

to highlight through image choice: (1) medicine and death, (2) religious allegory, (3) human relationships, (4) gender, (5) cross cultural perspectives, and (6) Taiwan/local context. Artwork selection balanced figurative and abstract pieces and included both international and Taiwanese works to enhance cultural resonance and student engagement.

The evaluation combined classroom observation, focus group interviews after the class, and an image level questionnaire after class specifically designed to assess each artwork's suitability for VTS within this medical education context. Classroom observations captured in the moment discourse to determine whether discussions effectively elicited the targeted humanities themes. Students' experience of both the images and the VTS process were explored in seven mini-focus groups of three to four students each; each session lasted from 1.5 to 2 hours, and was audio recorded and transcribed. The questionnaire translated six VTS image-selection principles—interesting subject matter, accessibility, cultural relevance, narrativity, appropriate ambiguity, and intelligible meaning—into six Likert-scale items (1–5). International VTS experienced medical educators and domestic scholars reviewed the content twice to ensure validity. Following review, the instrument was reduced from 12 to 6 items, with each item achieving a content validity index of ≥ 0.8. Qualitative analysis followed thematic analysis with dual coding and reconciliation; quantitative analysis summarized image level means and item distributions to identify selection thresholds.

Of the 27 artworks, 25 met the validation target in the image level survey; however, all 27 were observed in class or interview to elicit the intended humanities-themed discussions. Overall artwork means ranged from 3.38 to 5.00. The highest scoring images most frequently aligned with the themes medicine and death, including canonical clinical scenes, and gender, suggesting an advantage for themes closely tied to students' emerging professional identities and salient social concerns. Abstract pieces tended to score lower (3.61–4.29), indicating that beginners may require more time and scaffolding to engage productively with high ambiguity stimuli. Across items, curiosity and wonder scored the highest on average (4.55), whereas multiple interpretations was the lowest (4.19), suggesting that not all images equally invite plural readings. Based on these distributional patterns, we propose a pragmatic screen (overall mean ≥ 3.80) when validating future VTS images in similar cohorts.

Thematic analysis of focus group data yielded five thematic codes that illuminate how students actually "work" with images:

1. Color: Students' initial engagement often began with affective responses to palette and tonal

qualities such as warmth or agitation, supporting the idea that emotional attunement can serve as an entry point to more analytical observation.

2. Facial expression: Learners interpreted micro expressions to hypothesize emotional states and social dynamics—a practice directly translatable to clinical encounters.
3. Body posture / gesture: Attention to stance, reach, and bodily orientation prompted questions about agency, vulnerability, and narrative plausibility, sharpening evidentiary reasoning.
4. Art learning: Students reported incidental learning about composition, perspective, and stylistic cues such as halos in religious art, which in turn supported more grounded interpretations.
5. Clinician–patient interaction: Many participants explicitly drew analogies between VTS and patient interviews—starting from observation, formulating provisional explanations, tolerating uncertainty, and refining hypotheses as new evidence, or visual details, emerged.

The six targeted humanities themes functioned as conceptual lenses that students often arrived at organically through evidence based dialogue:

1. Medicine and death: Familiar clinical motifs helped observers engage in the method while encouraging attention to bodies, instruments, and setting as both diagnostic clues and prompts for ethical reflection.
2. Religious allegories: Even with limited doctrinal knowledge, students inferred meaning from gesture and arrangement, linking these inferences to values and care preferences relevant to real patients' belief shaped decisions.
3. Human relationships: Portraits and group scenes elicited rich inferences about roles, intimacy, and power, enhancing sensitivity to interpersonal contexts.
4. Gender: Learners contemplated representation, identity, and historical norms, often recognizing tensions between their first impressions and period context as an exercise in critical reflection.
5. Cross cultural perspectives: Visual cues related to race, attire, and setting supported discussions of equity, inclusion, and social history; students articulated how such awareness might inform communication and care.
6. Taiwan/local context: The inclusion of Taiwanese and Indigenous imagery enhanced relevance, stimulated curiosity about local histories and injustices, and invited students to situate professional identity within a specific cultural landscape.

In summary, a VTS centered museum based pedagogy appears both feasible and promising for cultivating humanistic literacy and competencies among medical students in Taiwan. With a transparent process for image selection, a mixed methods validation strategy, and careful

facilitation, VTS can foster evidence seeking dialogue that parallels high quality clinical reasoning and communication. By grounding discussion in artworks, VTS programs can help learners connect professional formation with broader social, ethical, and cultural narratives, thereby advancing the aims of contemporary medical humanities education.