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EXPERT OPINION

Twelve Tips for Facilitating Visual Thinking Strategies with Medical Learners

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Abstract: As awareness increases of the fundamental role of the arts and humanities in medical education, teachers must expand their skills to include arts-based pedagogical methods. With strong evidence to support its use with medical learners, Visual Thinking Strategies (VTS) is an arts-based method increasingly being adopted in medical education. VTS provides a structured way of leading interpretative discussions prompted by works of art. However, the simplicity of its structure can be deceiving. As with other teaching skills, faculty development is needed to train educators in VTS facilitation. This is essential not only to optimize VTS' benefits to participants, but – when VTS is implemented in research studies – to prevent doubts being cast on its impact on medical learners. Educators can apply the twelve tips on facilitating VTS described in this article to guide fruitful facilitation of VTS among medical learners, as well as to enhance discussion-based teaching in general.

Keywords: faculty development, arts and humanities, museum-based education, visual arts, teaching methods

Introduction

Despite increasing calls for the integration of the arts and humanities into medical education, few educators have learned how to incorporate arts and humanities-based pedagogical techniques into their teaching. Visual Thinking Strategies (VTS) is a rigorously developed and well-studied arts-based teaching method, which – without adequate education and practice – is easy to implement improperly and/or haphazardly. Guidance for educators on how to apply VTS in a thoughtful, rigorous, systematic way is necessary for learners to reap its full educational benefits. Furthermore, because the impact of VTS on medical learners is a burgeoning focus of educational research, the need for educators to learn its proper implementation is a matter of increasing urgency.

The arts have a fundamental role to play in medical education with the capacity to confer far-reaching benefits–from improving observation skills, empathy, and tolerance of ambiguity to fostering professional identity formation.[1–9] The visual arts, in particular, have the potential to support the development of clinically relevant skills and attitudes in ways that other art forms do not.[10,11] For instance, the close "reading" of a work of visual art, which entails attention to detail, grounding observations in evidence, appreciation of multiple possibilities, and openness to revising one's initial assumptions uniquely parallels the diagnostic role of a physician.[12–14]

Among visual arts-based teaching methods, Visual Thinking Strategies (VTS) has been the most widely studied, both in general and in medical education.[15,16] In VTS, participants closely view a carefully pre-selected work of art. The facilitator asks the group, "What's going on in this picture?" and calls on a participant who wants to respond. While listening to their response, the facilitator points to the relevant portions of the artwork. The facilitator then verbally paraphrases their response and, if needed, seeks clarification of visual evidence for the response, asking, "What do you see that makes you say that?" while, again, pointing and later paraphrasing the response, always using conditional language and remaining neutral to the response. The facilitator then opens the discussion again to the group with the question, "What more can we find?" repeating the procedure as described with each participant comment. At the

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conclusion of the discussion, the facilitator simply thanks the participants as a group for their engagement, without providing a summary of the discussion.[17] In medical education settings, this conversation can then be followed by a clinical translation debrief.[18]

VTS may seem to be a relatively straightforward process, but the simplicity of its structure is deceiving. To reap its full benefits, VTS needs to be conducted in a thoughtful, rigorous, and systematic way.[15] When carried out improperly, the impact of VTS on learners can be diminished and, if being studied for educational impact, could cast doubt on its relevance and benefits to medical learners.

In this "how to", educational methods article, we present a list of twelve tips on VTS facilitation for medical learners. We have derived these tips from three different types of authoritative sources: scientific, witness, and expert. First, as a source of scientific authority, we have depended upon and referenced the available, relevant empirical research on VTS facilitation to inform some of these tips. Second, as a source of witness authority, we have relied on our own experiences, whether for all of the authors as participants in VTS discussions or – for two of the authors' (MC and PY) – as VTS facilitators who have collectively seen and heard reactions of tens of thousands of participants – to guide our recommendations. Third, as a source of expert authority, each of the following twelve tips has been shaped by the experiences two of the authors have had – either as developer and museum educator facilitator of VTS (PY) or a physician facilitator (MC).

Twelve Tips

Do Not "Just Do It": Get Trained

We strongly recommend that medical educators participate in VTS facilitation training. The misapplication of VTS can lead to a chain reaction of misunderstandings. For example, in an article about the use of VTS with trainees in morning report the authors described a facilitator "versed in the methods of VTS" who "revealed accepted and/or proposed interpretations of the work at hand".[19] However, VTS facilitators are trained specifically to not add their own ideas or those of "experts" to the discussion. VTS facilitators are trained to encourage participants to reflect and articulate their own intuitive interpretations.[16] Nevertheless, this published description of a divergence from the prescribed VTS method led the author of an Invited Commentary that accompanied that article to question, whether VTS is an example of a humanities-based method given that the article reported inclusion of a "provisional summary" and "closing reveal of accepted and/or proposed interpretations of the work", thus perpetuating a misunderstanding of the core tenets of VTS.[20,21] A variety of resources are available to support health professionals who want to learn the key components of VTS facilitation. Introductory VTS workshops are frequently offered at national or international medical education conferences. Several formal VTS training programs exist, including a continuing professional development course in VTS facilitation designed specifically for health professions educators.[22–24] After completing formal training, one may elect to pursue certification as a VTS facilitator. It is essential that medical educators who seek to lead VTS first learn VTS method before practicing it and/or studying its impact on learners.

Practice, Practice, Practice!

To become highly proficient at complex skills like playing a musical instrument or a sport requires up to 10,000 hours of practice plus coaching on one's performance.[25] Facilitating VTS discussions is also a complex skill, and to become facile requires multiple opportunities to practice leading VTS sessions. This practice occurs in small groups with other trainees and is followed by facilitated peer coaching by program faculty. Although it does not take 10,000 hours of practice to become a VTS virtuoso, formal VTS training programs require a minimum of 10 hours of practice facilitating VTS discussions to become eligible for certification.

Ten years ago, one of the authors (MC) experienced a VTS discussion at the Boston Museum of Fine Arts for the first time. A formally trained museum educator led the discussion and made VTS facilitation appear so easy that MC immediately decided to start leading VTS discussions at the National Gallery of Art in DC with her trainees.[26] She quickly realized that VTS facilitation was not as easy as it looked and that she had a lot to learn. After formal training and hundreds of hours of practice sessions, MC is more proficient but is continuing to learn. Every discussion is unique, and each one teaches her something about how to be a better VTS facilitator.

Know Who You are Teaching and if VTS Will Accomplish Your Learning Objectives

In addition to being certain that you facilitate well, consider the learners you are setting out to teach: what are their strengths and limitations? What skills do they need to strengthen to be their best clinical selves? In other words, what are your program's learning objectives? We recommend that medical educators seeking to design any arts and humanities program use Kern's six steps for curriculum development with special reference to the Prism model for guidance.[27] This will ensure that VTS aligns well with your objectives and is likely to achieve the desired outcomes.[28] VTS has been shown in many studies to advance participants' observation skills, their ability to listen to the voices of others while deliberating on the problem at hand, to ground inferences in evidence, and to tolerate being unsure for long enough to sustain a meaningful analysis. Are these the skills you intend for your students? If so, VTS may be the right choice to ensure a successful outcome.

On the other hand, if you have a specific teaching point you want learners to take away from a discussion, VTS may not be the most appropriate method. One of the authors (PY) has led discussions in which he chose the image to provoke a discussion about sexual identity. However, to stay faithful to the VTS method, when none of the participants' comments touched on this theme, he resisted interjecting his own observations and interpretations. Doing so could make participants feel like a "right" answer existed – that they needed to think about the work in a particular way – which would be counter-productive to the open-ended spirit of the VTS process, which turns over the ownership of the conversation to the participants. If an educator desires a specific topic to be raised in the discussion, VTS can still be used. While the VTS discussion should be open ended and free of any agenda, the facilitator has the opportunity to use follow-up questions to direct further conversation to the desired topic.

Choose an Appropriately Engaging Picture

Image selection is crucial to VTS and to make good choices, it is beneficial for the facilitator to have some knowledge of the group's personal and professional identities. Images can but need not be explicitly related to medicine. The best choices include people, activities, and interactions likely to be equal parts recognizable and open to interpretation. They contain concrete and recognizable components to allow learners to start a discussion by observing objective details; they also have ambiguous elements to sustain the observational process and to encourage probing for complex, varied interpretations.[16] Although you may select an image anticipating specific reactions, the learners often go beyond expectations. Each learner's interpretation of an image is influenced by multiple factors, including cultural background and experiences, learning setting, and their present state of mind. They are often influenced by the ideas of others as discussions deepen.[29] Good VTS images are likely to have wide appeal and interest to the learners, one with many possible meanings.

Of course, it can be difficult to select the right image for a group 100% of the time. If the pre-chosen work is not engaging the participants, we have found that pre-selecting a second, back-up image that we keep in our "back pocket" (eg, in a nearby gallery or electronic folder) makes it easy to pivot to a new VTS discussion when needed (although this becomes needed less frequently with experience in image selection).

Maintain Fidelity to the Three Questions

The wording of the three questions used in VTS supports specific modes of thinking. "What's going on in this picture?" asks participants to make observations and to comment on the objects, actions, and events that they see, identifying things and looking for meaning in what they see. A seemingly simple shortening of "What's going on" to "What do you see in this picture?" elicits a different response; the instruction embedded in the "see" question leads to listing rather than meaning making. "What do you see that makes you say that?" asks learners to provide concrete evidence to support their observations and inferences, practicing logical and evidence-based reasoning. The third question, "What more can we find?" challenges the learners to probe and continue their investigation. They may find more details that support their initial observations; equally possible, they may notice aspects of the image that call into question their previous findings, prompting them to reevaluate their initial inferences. Working collaboratively, they discover, discuss, and debate more than any would alone. The behaviors sought by the VTS questions as worded—searching for narrative, making informed

inferences, revising one's thoughts, and collaborative thinking—are all important to a physician. Perhaps these skills can help promote an increased ability to make accurate diagnoses while respecting the patient as an individual with a story, not just a patient with a disease. The collaborative thinking may also be useful for medical students working together as a team, from discussing different treatment options for patients to successfully performing a surgical operation.

We have observed troubling nonverbal and verbal responses of participants when facilitators deviate from the wording of these questions. For example, verbal expressions of inadequacy - "I do not know what else to say?" - when a facilitator asks, "What else can we find?" rather than "what more can we find?" or looks of frustration when a facilitator asks, "Why did you say that?" rather than "what do you see that makes you say that?"

Acknowledge Each Contribution to the Discussion: Paraphrase

To maintain an environment where people willingly share their thoughts, it's important to provide supportive feedback for each comment. VTS asks you to show you have listened attentively by paraphrasing their comments. The first way to do so is visual: point to the details of the image referred to as participant speaks, confirming you are clear about what the participant sees. At the same time, you focus everyone's attention on that part of the picture. The second way is verbal: paraphrase each comment, concisely rephrasing the observation without adding anything or offering any judgement. This lets all participants know they are understood and valued, and that each contribution helpfully adds to the collective meaning making. It shows others that each idea merits consideration. Importantly, it also emphasizes that VTS is about a process of rigorous examination.

Participants are hypervigilant to whether they have been listened to and heard. When one of us has failed to paraphrase completely and accurately a participant's remark, it is the rare participant who will have the courage to speak up to the facilitator to point our omission or confusion out. We often invite participants to correct us by asking "Did I get all of that?" or "Did I get that right?" or even "I am not sure I got all of that" or "I do not think I got that right."

Use Conditional Language as You Paraphrase

To sustain a discussion and make use of art's many possible interpretations, paraphrase comments using conditional verbs. This emphasizes that ideas shared are valid as possibilities instead of statements of fact. For example, instead of saying, "Austin says this is taking place at sunset…", say, "Austin thinks this might be sunset…" or instead of "Susan sees a doctor…" say, "Susan wonders if this figure could be a doctor…" Conditional language recognizes the inherent ambiguity of images and allows for more interpretations to be shared and more options to be debated. The frequent process of considering multiple possibilities builds the behaviors necessary for ensuring that patient treatment is thoroughly thought through.

MC was once facilitating a VTS discussion of Gustav Klimt's painting, *Three Ages of Women*. Although she did not share the artist's name or work's title with the participants prior to the discussion, most referred to the three figures in the painting as women. Despite this, MC continued to use conditional language to describe the figures' genders: "The figure on the left that you think may be a woman", "the central figure that you describe as female", etc. Although that conditional paraphrasing seemed a little unnecessary, since every one of the discussion participants seemed to agree about the figures' genders, MC was happy that she had consistently used conditional language, when the one person who had not yet participated eventually spoke up, This participant had a divergent view from the rest of the group, and referred to the figure on the left as a man. If MC had not used conditional language throughout her facilitation, this participant may not have felt comfortable voicing this different perspective.

Link Related Comments

VTS discussions of art gradually build as observations and inferences accumulate. Some comments contribute something new. Others support one another. Others offer alternative readings, perhaps contradicting earlier thoughts despite all being grounded in evidence. For this mass of ideas to become a deep and credible analysis of an image, keep track of the unfolding ideas as they build. For example, "David thought the figure's expression might be sad, but Abby wonders if they could just be thinking." Meaning making comes to be seen as enriched by group process, differing ideas helpfully scaffolding off one another. This builds tolerance for remaining in inquiry and awareness of others' usefulness; it can

even promote empathy. The act of listening to each other — being witness to others' narratives and understanding where others are coming from — is a critical first step in being empathic.

We have found that linking participant comments also has the additional benefit of demonstrating to participants that not only are you listening to and hearing their comments, but you are remembering their ideas, thus marking them as important. When we have failed to link an earlier comment to a current one, we have seen looks of disappointment on the face of the previous commenter.

Frame Each Comment to Build Metacognitive Awareness

Linking helps learners become aware of how group processes contribute to more exhaustive analyses. Another tool, referred to as "framing", helps learners know how they are using their own minds during discussions. For example, if a paraphrase begins with "You are calling our attention to the artist's use of color" or "You have added a new element to the story we have been debating", the learner is offered a framework for understanding their own thinking: metacognition. Building such awareness helps make reflection on VTS discussions richer and helps people become aware of preconceived notions, implicit biases and/or lapses in judgment. This may later prove useful to medical students as they avoid personal biases and assumptions when faced with patients.

Often, even before the facilitator has a chance to ask, "What do you see that makes you say that?" a participant has already realized as they were offering their initial comment that they have no visual evidence to support their interpretation, and that they may have come up with a particular narrative due to their own experiences and biases. This ability to engender self-awareness of bias is – in our view – one of VTS' greatest strengths.

Resist the Impulse to Add Your Own Observations and Ideas

To maintain a psychologically safe learning environment – one where all participants feel they can share their thoughts without fear—it is important for the facilitator to remain neutral. You may agree or disagree with comments or strains of thought but keep such judgment to yourself. You want learners to experience and appreciate free exercise of their eyes and minds. Therefore, let the discussion be entirely driven by the participants. The story is theirs to figure out. Meaning is theirs to probe, and language is theirs to wield. VTS allows them to become comfortable working through ambiguity and uncertainty on their way to well considered decisions. Wondering and discovering show they are ultimately useful.

MC recently observed a learner practicing VTS facilitation who was having trouble refraining from showing her enthusiasm for some comments and refraining from interjecting her own ideas about the works. After one participant comment, she said "Interesting!" After another comment about the painting's setting, this fledgling facilitator introduced her own observation of an item in the composition not mentioned by the participant. And after another comment, the facilitator acknowledged as she was paraphrasing that she was adding her own ideas, saying "To me, there's not a lot of detail". In the coaching session that followed, the facilitator showed excellent self-awareness of deviating from the method saying, "It is challenging to not interject with my own interpretations" but was able to recognize the benefits to the participants of remaining neutral and allowing them to lead the conversation.

Resist the Impulse to Summarize the Discussion

Thank participants for their participation, even mentioning what you particularly enjoyed but do not summarize the discussion. You kept track of the progress of the discussions through paraphrasing and linking. Let learners synthesize their own conclusions deciding what they think is important and want to remember.

When we have been tempted to wrap up the conversation with a summary, it only takes a moment to realize that it will be impossible to member and include every idea offered by every participant. Remembering our own limitations and imagining what it would be like as a participant to have our idea be the only one left out helps us resist the natural impulse we may have as educators to summarize the conversation.

Debrief the Process and Its Relevance to Learners

The facilitator should conclude the VTS session by debriefing the process, asking, for example, "What does VTS ask of you as a participant? How might this relate to your work as a clinician?". The goal of VTS is not to search for one

objective truth but to invest in the process of looking, thinking, and speaking. The purpose of debriefing the session is to home in on that process, helping learners to make connections to clinically relevant skills. VTS may have changed or enriched their understanding of medicine.[18]

We have found the clinical translation debrief to be essential to our facilitation with health professions learners. What seem like obvious lessons to us are not obvious takeaways for the participants. Surfacing the clinical relevance of the experience of VTS is essential to bridging the connection between the museum and medicine.

Conclusion

VTS is an evidence-based method that has been implemented and refined for over three decades. Its impact depends on whether VTS is a method likely to achieve the desired learning outcomes, and on the facilitator's adherence to the key elements of the method: using the three questions, paraphrasing with conditional language, linking, framing, resisting the impulse to insert oneself into the discussion, a non-summative conclusion, and – with medical learners – a clinical debrief of the process and its relevance to medical education and practice. Although VTS facilitation appears simple at first glance, to be a skillful facilitator requires training, practice, and coaching. The twelve tips in this article are meant to be used as a set of guidelines for facilitators to keep in mind to ensure fidelity to the VTS method so that medical learners and the patients they serve will reap the full potential of arts-based teaching.

Abbreviations

VTS, Visual Thinking Strategies.

Disclosure

Philip Yenawine receives royalties for his books, Visual Thinking Strategies and Visual Thinking Strategies for PreSchool. He receives occasional facilitation fees and an annual use fee from the Hailey Group for its training, VTS@Work and for collaborating on courses at Johns Hopkins School of Medicine. Dr. Chisolm directs the Paul McHugh Program for Human Flourishing, through which her work is supported. She is also a coach in the Harvard CME course that teaches VTS to health professionals. There were no additional grants or funding support for this project.

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