Teaching and Learning Events

Open Faculty Hours with Director of Writing and Rhetoric/Director of First-Year Seminar
As you prepare your course proposals (due February 7), work with Meredith McCarroll to receive feedback on writing assignments, assessment of writing, and ways to integrate writing into courses in a meaningful way. Drop in during any of these hours, or contact Meredith to set up additional times. mmccarro@bowdoin.edu and 721-5056
   Monday, February 3, 11-12; Tuesday, February 4, 9-10; Wednesday, February 5, 3:15-4:15;
   Thursday, February 6, 3-4; Friday, February 7, 9-10

Fac/Staff Dialogue-The Privileged Poor: How Elite Colleges are Failing Disadvantaged Students
Feb 26, 9:30-11AM OR Feb 28 1:30-3PM, Main Lounge
Interested in talking more about the work of Dr. Anthony Abraham Jack and the implications for our work at Bowdoin? In preparation for our discussion, you could read his book The Privileged Poor, read a New York Times Article, listen to a podcast, attend his lecture on Wednesday, February 19 at 7PM in Kresge-VAC, and/or participate in a workshop with him on Thursday morning, February 20 9:30-11am in Main Lounge.

Fac/Staff Book Group- The Person You Mean to Be: How Good People Fight Bias by Dr. Dolly Chugh
April 8, 9:30-11AM OR April 10 1:30-3PM, Cram Alumni Barn
http://bit.ly/PersonYouMeantoBeBookGroup

Save the Dates

2020-2021 Faculty Fellows Application Due
April 15, 2020
FMI: https://www.bowdoin.edu/baldwin-center/for-faculty/faculty-fellows-program.html

Faculty Seminar- 2019-20 Faculty Fellows
(Javier Cikota, Page Herrlinger, Adanna Jones, Jennifer Kosak, Willi Lempert, Dharni Vasudevan)
IDEAS for the Classroom: Inclusion, Diversity, Equity & Access for Students
Tuesday, April 21, 12pm-1pm, Main Lounge

May Institute- Inclusion & Equity in the Classroom
Wednesday & Thursday, May 27 & 28, 2020
Keynote on May 28: Drs. Viji Sathy & Kelly Hogan- Inclusive Pedagogy

Pedagogy Matters Conference- Colby, Bates & Bowdoin (CBB)
Friday, August 21, 2020, Colby College
Keynote: Dr. Sarah Cavanagh, Author of The Spark of Learning: Energizing the College Classroom with the Science of Emotion
Philip Yenawine and Alexa Miller introduce the practice of Visual Thinking Strategies (VTS) and explain how class discussions using the art-based pedagogical model support the development of critical thinking not just in the arts and humanities but also the sciences.

By Philip Yenawine and Alexa Miller

Visual Thinking, Images, and Learning in College

What if your first-year students had both the confidence and language skills to debate complex ideas with you and their classmates and, at the same time, were able to disagree civilly and build on information and ideas from others? What if they expressed opinions based on detailed observations and consistently provided evidence to back them up?

Interestingly, we have documented these skills in elementary students—fourth- and fifth-graders—who have experienced a modest intervention called Visual Thinking Strategies (VTS). VTS uses discussions of art to build language and thinking skills as well as visual literacy, and it accomplishes this in an efficient 10 hours a year beginning in kindergarten. Its efficiency relates to its structure: it activates and builds on existing skills and interests, is developmentally based, engages peer interaction, and gradually escalates challenges. In addition to these skills, cognitive researcher Abigail C. Housen has documented others that appear over time in almost all students, including the capacity to speculate among multiple possible conclusions drawn from observations. Many students will return to an idea to elaborate or revise opinions based on new information.

What if these same skills, deployed easily by 10-year-olds as result of rigorous art-viewing discussions, were developed with intentional consistency at the college level? If the new Common Core State Standards are effectively implemented—not a sure bet at this point—students might develop these or similar skills before they get to college. But as it stands now, students enter college only a few weeks out of high school, and we expect them to learn in a much more challenging environment for which few are truly prepared. The rigors, requirements, opportunities, choices, and responsibilities of college are new to most students, yet the general expectation is for them to hit the ground running, with the ability to take in material that is likely more challenging than any encountered earlier, process it in more sophisticated ways, and produce work in forms and at depths and speeds that are most likely new.

If students enter college missing essential skills, and if we expect clear, innovative, analytical, reasoned thinking and writing, what responsibility do college educators have to help students learn to think and express themselves in the ways that optimize the potential learning offered by an array of courses taught by faculty who have spent years acquiring knowledge about their subjects?

In this article (and in its companion by Dabney Hailey), we propose a role for the Visual Thinking
Strategies—the strategy that nurtures the thinking of the children mentioned earlier—in undergraduate teaching and learning. Drawing from our shared and varied pedagogical experiences integrating VTS teaching in higher education (on college campuses and in medical education), as well as in K–12 settings, it is our opinion that VTS addresses two urgent needs limiting all academic domains at the college level: critical thinking skills (and the language to express complex thought) and active classroom engagement. We describe here how VTS works to meet these needs. We also suggest how college educators can implement VTS as a model for authentic discovery in their courses and further enlist collaborations with art museums—a resource already (and often freely) available in many communities, and even on many campuses.

**Images and Discussion: The VTS Protocol**

*Most college teaching employs* lectures and to the extent that discussions play a part, they usually reward students for contributing specific information from reading or lectures. VTS works in another way: discussions are open ended. They are also facilitated; teachers offer no directive questions, opinions, or information of their own and seek no specific answers. Instead, the teacher remains a neutral expeditor of rigorous examination, while student interests and ideas drive the content. VTS discussions focus on images carefully selected to address the concerns and developmental readiness of students. As facilitator, a VTS teacher helps students to:

- Look carefully at complex, intriguing works of art.
- Engage in thoughtful, extended examinations of what they find.
- Back up their ideas with evidence.
- Listen to and consider the views of others, agreeing, disagreeing, or building on what they hear.
- Hold a variety of interpretations as possible.

The facilitating teacher initiates the process, asking one and all to simply look for a few moments at a carefully selected image, studying the subject of the discussion that’s about to begin. To activate the conversation, the facilitator asks a very basic and familiar meaning-making question: *What’s going on in this image?—* a question that easily becomes *what’s going on in this text* if the subject for discussion is written. (Elements of VTS are listed in Figure 1.)

Early comments usually come either as observations—fairly straightforward description of elements seen in the image—and/or interpretations of what may be going on—pulling back and drawing conclusions. When the comment is the latter, the teacher asks a second, more specific question: *What did you see/read that makes you say that?* This question asks students to provide evidence in a concrete way that keeps the conversation focused on the subject. It further gives permission for students to stay grounded in concrete observations visible to others, even if they interpret what they see differently; the wording *What do you see that makes you say that?* has a different impact on students from, say, *Why do you say that?*

When the facilitation of each comment is finished, the teacher then asks, *What more can we find?* It is useful to repeat this question frequently, even when students are eager to comment, to keep positing the notion that there is always more to find, a truth of many subjects and certainly true of art, a subject we address more deeply later.

Simple as these questions are, they have proven to provoke deep and rich explorations with very young people; mature, experienced, knowledgeable ones; and all kinds in between: they constitute an authentic, accessible, and fairly complete meaning-making strategy, easily adopted and used by the learner. They have been tested with over two decades of research and experimentation, and the protocol has been honed by thousands of pieces of research data documenting the thinking and communication skills indicated above. The protocol’s success has been documented largely in K–12 settings and, more recently, among students in medical and nursing education.

It is important to clarify that VTS does not teach what to think, but rather supports the discoveries students make when they are given opportunities to think in various ways. Such habits of independent thinking transfer to other subjects, a phenomenon Housen’s
As the child further hears the names of the things she notices, she starts making connections between observations and sounds, and language begins to form. While it is a visual connection to the world that establishes foundational understandings, this is gradually eclipsed as children begin to accommodate text and numbers. Even so, the ability to observe and decipher remains intact. It’s especially strong among students with learning challenges and those who have immigrated to the United States recently who use their eyes and minds to figure out what’s going on until they begin to accommodate language.

This capacity for looking at the world around them is no less true of the young adults entering college. And while visual learning may hold less curricular space in our text-based schools, it can be called back into action easily, honed quickly, and applied to a range of visuals to great effect. Visual literacy is only the most basic aspect of the impact of exercising the eye-mind connection. Abigail Housen’s data confirm ideas as old as Aristotle: when our brains are negotiating aesthetic territory—the blur of movement captured research confirms. Using a stream-of-consciousness interview protocol, by asking subjects to talk about what they see in both art and material objects such as fossils, maps, or unusual tools, Housen has coded thoughts that can be categorized generally as observing, inferring, offering evidence, speculating among possible conclusions, and revising opinions. These appear first in interviews during which the subject examines an art image and reliably later when looking at objects of another sort. Teachers have observed this variety of thinking transfer from VTS lessons to discussions of poems, scientific phenomena, math word problems, and elsewhere.

Why start with art as a discussion topic? First, all sighted people have the ability and innate habit of looking at what’s around them and thinking about what they see. Beginning as toddlers, we examine everything—people, things, faces, bugs, the moon—and come to understand such things in our own ways. To reflect on this universal practice reminds us of the close interaction between the mind and the eyes; what we see inherently shapes what we think we know.

The basic steps for conducting a VTS discussion are as follows:

1. Present a carefully selected image. Ideal images contain:
   - Subjects of interest given the specific students ages and backgrounds
   - Familiar imagery given the existing knowledge of students
   - Strong narratives, accessible but layered; “deep”
   - Accessible meanings given students: intrigue but don’t stump them
   - Ambiguity: enough complexity to puzzle and inspire debate

2. Allow a few moments of silent looking before beginning the discussion.

3. Pose three specific research-tested questions to motivate and maintain the inquiry:
   - What’s going on/happening in this picture?
   - What do you see that makes you say that?
   - What more can you/we find?

4. Facilitate the discussion by:
   - Listening carefully to catch all students say.
   - Pointing to observations as students comment, a “visual paraphrase.”
   - Paraphrasing each comment, taking a moment to reflect on it while formulating the response to make sure all content and meanings are grasped and helpfully rephrased.
   - Linking related comments whether students agree or disagree, or build on one another’s ideas.
   - Remaining neutral by treating everyone and each comment in the same way.

5. Conclude by thanking students for their participation.

As the child further hears the names of the things she notices, she starts making connections between observations and sounds, and language begins to form. While it is a visual connection to the world that establishes foundational understandings, this is gradually eclipsed as children begin to accommodate text and numbers. Even so, the ability to observe and decipher remains intact. It’s especially strong among students with learning challenges and those who have immigrated to the United States recently who use their eyes and minds to figure out what’s going on until they begin to accommodate language.
Students appreciate this nearly invisible but vital assistance as well as the respect each comment receives from the authority figure at the head of the classroom. In order to build awareness of thinking itself, the facilitator identifies the kinds of thoughts heard; for example, she might say: you’ve noticed something not yet mentioned, you’re building a narrative, you’re recalling information and applying it here, you’re thinking of what the artist/author might have intended, you’re seeing a metaphor here, you’ve picked up cues regarding the era here and are wondering how to know specifically when this is taking place, and so forth.

**The Importance of Discussion in Higher Learning**

**Twenty-First Century Students** need to learn to manage twenty-first century data: data that is complex, ambiguous, changing, and requiring synthesis across disciplines. We share this hypothesis with many colleagues—one in particular is Linda Duke, director of the Beach Museum of Art at Kansas State University, who has been influential in developing these ideas through her collaboration, mentorship, and tireless work at the intersection of art museums and higher education. Works of art provide the level of density and complexity to engage the mind thoroughly and a context for students as well as teachers to address material that is authentically unfamiliar, which is an essential condition for promoting a climate of discovery. Furthermore, students must navigate this unfamiliar territory using the skills of perception, language, thought, emotion, and collaboration. In this way, VTS nurtures the skills of inquiry and critical thinking. Art further provides a change in context for the practice of essential skills, allowing for students to explore new behaviors, see anew, push their boundaries, and to do so in a supportive environment.

The case for employing VTS to enrich learning among college and university students, as it has proved to be for younger people, is based on the premise that discussion fosters the development of skills difficult to teach or learn any other way:

by photography, the graphic certainty of the illustrator’s line, the questionable mix of color displayed in the landscape, layered meanings—virtually all aspects of cognition come into play.

Second, this happens because of the nature of art. Much of what we see in art is common to daily experience. Most art images depict people, places, things, expressions, interactions, moods, costumes, weather, spaces, light, colors: virtually all that we experience or imagine finds its way into art of various times and cultures. But works of art are also ambiguous in meaning, multilayered, intentionally open to interpretation, and often have symbolic and abstract elements; making sense of them offers great training for our minds. An important aspect of art is that feelings are embedded in it along with information, triggering a full range of responses from those who look at it thoughtfully. Again, we cite Housen’s research into thinking related to art: it is a particularly rich form of cognition, incorporating processes applicable in most disciplines.

Talking about what we see in images brings the thinking into focus. To explain our thoughts, we seek and use language that goes beyond what is required by normal interactions. Skilled facilitation, as discussed in the following paragraph, greatly assists individual students, as well as the group at large, in finding full expression for their thoughts and evolving understandings of what they see.

While the three questions make up the core of the VTS protocol, other key teacher actions also drive the process: the facilitator points to students’ observations as they are stated, listens to each comment, and paraphrases students’ responses. These moves acknowledge each speaker, ensure that all realize the validity of what’s said, and often clarify the language and ideas expressed. Experienced VTS facilitators draw on a wide repertoire of language to help students learn to express themselves in the manner appropriate for college, without changing students’ meanings.

Such paraphrasing aptly captures the thrust of students’ comments that may be quite rich as ideas but need assistance to be expressed with equal richness.
While interacting with art offers an excellent way to promote discussion, allowing students to exercise skills they’ve had since infancy, the VTS strategy applies to all forms of visual material as well as to texts. VTS questions and facilitation work with anything “discussable.” (See Figure 1 for a brief overview of image/text selection.) In colleges, choosing the subject matter for initial discussions may take some practice, but if beginning with art makes sense, as we believe it does, art museum staff either in a campus gallery or local museum can often provide assistance finding relevant art. In any case, we recommend that anyone interested in getting students to the point where they have the combination of skills required by group, peer-assisted learning and problem solving—willingness to articulate and share observations and ideas and ability to present evidence as well as to listen, discuss, and debate productively, for example—build such open-ended discussions into a sequence of early classes.

Discussions of art probably make immediate sense to those involved in the creative arts, the humanities, and the social sciences. For example, in art history, discussion is an important way of introducing unfamiliar cultures, media, or styles, which sets the foundation for further study. But more importantly, close looking is a fundamental part of responsible study of art, and discourse is essential to art criticism. VTS
Because VTS asks students to contend with open-ended scenarios with no single right answer, such discussions undermine students’ expectations of certainty and of the immediate availability of right answers.

image discussions, while not the norm in art history classrooms, allow critical examination to be integrated into teaching the discipline consistently, and within the context of varying perspectives, rather than leaving students on their own to learn to probe images.

That said, it is interesting to think about image discussions in light of recent concerns about what is missing in other areas of college teaching and learning. I (Alexa Miller) recently organized a program in collaboration with the American Medical Student Association called Aesthetic Attention: Art and Clinical Skills, in which undergraduates in premedical and health sciences studies gathered to identify and discuss core skills in medicine related to careful, unbiased inspection of patients. They engaged in a VTS discussion of Picasso’s *Girl Before a Mirror* (1932) as a mini-lab for the practice of the skills identified including observation, description, analysis, and navigating ambiguity. Rich with difference of opinion, the discussion allowed students to practice fact-finding from a particularly full and complex picture, and to further speculate about issues related to self-image, child-rearing, and depression, major concerns in both medicine and bioethics, not to mention the real lives of undergraduates themselves. Interestingly, *Girl Before a Mirror* triggered associations with Picasso, its maker, for some—but not all. This led to a subsequent conversation allowing students to notice how we look differently at things we think we understand versus those we don’t, and how previous knowledge informs what we see. Expertise carries with it both assets and limitations—a predicament with which students planning careers in medicine must eventually deal with, as must leaders in any discipline, though they often don’t learn about it in school—and VTS provided foundational experience to make that lesson explicit.

**Addressing Science Needs with VTS**

**While Undergraduate Educators** across the board share concerns about student engagement and critical thinking, we are particularly struck by the way in which reformers in undergraduate biology approach this issue: they identify crippling issues in the field—declining enrollments and widespread student misconceptions about science in general—and attribute one key cause to be a fundamental disjunction between the information delivery that largely constitutes preparation in scientific disciplines and the practice of science. Students “leave our introductory courses viewing biology as a large collection of disconnected facts that have little relevance to their daily lives and will soon be forgotten,” writes William B. Wood, on the biology faculty at University of Colorado, Boulder, and an award-winning leader in biology education.

Reform in undergraduate biology teaching, such as work by Jo Handelsman, William B. Wood, the President’s Council of Advisors on Science and Technology, and the National Research Council, further demonstrates a consistent view that the solution to this problem lies in improving teacher practice, and doing so specifically through the application of cognitive science and the promotion of discovery in teaching methods. These strategies are interesting to us because VTS, as an empirically grounded active learning method, meets both of these criteria and has been found to transform teacher practice on both the philosophical level and in the technical moves teachers make.

While the “preparation-practice” divide represents gaps in undergraduate biology (with both educational and economic significance), it is certainly not unique to that field alone. Biology may in fact be ahead of the curve in its level of organized pedagogical reform and in its progress in integrating principles of science into teaching.

Because VTS asks students to contend with open-ended scenarios with no single right answer, such discussions undermine students’ expectations of certainty and of the immediate availability of right answers. This is fertile ground given the all-too-common misconception, not just in biology but in most fields, that there are universal certainties and clear right answers. If students don’t get beyond the right answer strait jacket, they remain unprepared for the real-world dilemmas they will eventually face. In other words, in addition
to impacting intellectual skill, we propose a useful role for VTS in developing students’ attitudes toward the work of getting at truth. Is there one true narrative? Can multiple truths coexist? Can we ever fully know? It is common, even necessary, in VTS for the student to hold multiple interpretations of the observed art simultaneously, just as scholars so often do in confronting raw data. When students look at art together, they contend with uncertainty and with the ethical aspects of truth telling and truth finding—a major enterprise at the college level.

Active learning in most subjects, particularly in science and math, is an issue of high importance from an economic perspective as well. “American students,” states President Obama, “will move from the middle to the top of the pack in science and math over the next decade. For we know that the nation that out educates us today will outcompete us tomorrow.” Thus reads the charge of the President’s Council of Advisors on Science and Technology (PCAST) to help produce one million additional college graduates with science-technology-engineering-math (STEM) degrees. The resulting report states five recommendations; the first two call for improved teaching practice by cognitive science integration and by promoting discovery. The authors stress science students’ inability to engage in conceptual and analytical thinking as a fundamental problem.

Whether the goal is to close educational or economic gaps, it is active learning with experiences of ambiguity and the development of skills for data gathering and data synthesis that represent primary needs. Reformers in undergraduate biology are especially aware of this problem. It further reverberates loudly in medicine, where misdiagnosis is linked to faulty data gathering and premature data synthesis.

**In Summary**

**Facilitated Discussions—Structured But Open Ended**—are an efficient and productive strategy for initial inquiries into unfamiliar material, for building trust and collaboration among students, for creating a platform for teaching evidence-based discovery and debate, and for building experience with deep readings of complex material. This argument has been put to the test as we shall see in the accompanying article by Dabney Hailey in which she delves deeply into VTS applications in a wide variety of courses.

Many have explored the potential for arts and humanities learning to help students develop capacities in empathy and imagination. We fully support those important roles. But the potential for arts learning to stimulate intellectual development in ways that students can apply broadly, across disciplines, has been greatly underestimated. We offer the research findings as well as our own experiences with VTS as evidence that art can provide fertile ground for helping students become better thinkers and communicators.

**Notes**


Miller, A. *Aesthetic Attention: Art and Clinical Skills*. A webinar for premeds (participation: 20), hosted by the American Medical Student Association, 2/21/14.


The Baldwin Center for Learning and Teaching
The Baldwin Center promotes intentional, equitable, and effective learning and teaching environments. We are committed to inclusive excellence and to helping all students, faculty, and staff grow as learners and teachers. The programs housed in Kanbar 102 serve as a location for discussions, tutoring, mentoring, and advising. Tutoring, mentoring and writing assistance occur Sunday-Thursday nights in Kanbar 102 between 6-10pm. Students may schedule appointments at: www.bowdoin.edu/baldwin-center or drop in for peer-to-peer support or make an appointment directly with Baldwin CLT Staff listed below. Faculty may make an appointment for a consultation directly with staff.

Administrative Contacts
Kathryn Byrnes, Director 102D Kanbar 207-725-5035 kbyrnes@bowdoin.edu
Tammis Donovan, Administrative Coordinator 102G Kanbar 207-725-3006 tdonovan@bowdoin.edu

ACADEMIC COACHING
Kathryn Byrnes, Director 102D Kanbar 207-725-5035 kbyrnes@bowdoin.edu
Students may meet individually with Katie Byrnes and can also be matched with a trained academic peer mentor. Meetings offer assistance in addressing course-specific or general learning challenges and cultivate an increased awareness of learning strengths and areas for improvement including, but not limited to: time management and study habits/strategies.

ENGLISH FOR MULTI-LINGUAL SPEAKERS (EMS)
Lisa Flanagan, Advisor, 102B Kanbar 207-725-3056 lflanag2@bowdoin.edu
Students, faculty, and staff who are multi-lingual or who have parents who are non-native speakers of English may work with EMS Advisor Lisa Flanagan. They may seek help with understanding assignments and reading strategies, grammar, outlining, revising, editing, and the conventions of scholarly writing. Tutoring is available by appointment.

THE Q (QUANTITATIVE) REASONING PROGRAM
Eric Gaze, Director, 301 Kanbar 207-725-3135 egaze@bowdoin.edu
James Broda, Assistant Director, 222 Kanbar 207-725-7148 jbroda@bowdoin.edu
Provides support to students in understanding and using numerical information. Peer tutors lead study groups and individual tutorials for students in quantitative courses. Supports faculty in the design and analysis of quantitative material in coursework.

WRITING AND RHETORIC
Meredith McCarroll, Director 102E Kanbar 207-721-5056 mmccarro@bowdoin.edu
Students in any discipline may work one-on-one with a trained, peer writing assistant to improve their writing process and strengthen their writing. Writing assistants work with students in selected courses, semester partnerships, and drop-in workshops. Directs the First Year Seminar program and supports faculty incorporating writing and oral presentations in their classrooms.

FACULTY DEVELOPMENT-TEACHING
Kathryn Byrnes, Director 102D Kanbar 207-725-5035 kbyrnes@bowdoin.edu
Provides support to faculty on course design, learning goals, syllabi, assignments, assessment, mid-course feedback, Bowdoin Course Questionnaires, challenges with students, and other aspects of teaching and student learning. Supports Baldwin Faculty Fellows program and Teaching Triangles reflection program. Organizes August, January, and May Institutes on teaching and learning.