Response

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In this chapter, Pam has accomplished two important tasks—one overt, one implicit:

- She has catalogued a number of ways in which teachers successfully integrate visual-verbal pedagogy into their courses across disciplines. And, in doing so, she demonstrates that these teachers have not encountered (or, at least, not been hogtied by) the dreaded loss of "content" coverage that many teachers assume results from any class activity other than a lecture.
- Through these snippets of classroom application, Pam provides a powerful model of how a writing-across-the-curriculum (WAC) program can be established without waging a continuous campaign of hard-sell tactics, shame, and administrative pressure along with the perpetual twisting of volunteer faculty arms. This chapter highlights the ease with which writing and visual activities intersect in many different disciplinary settings to help meet the pedagogical situations and needs unique to these knowledge communities. And by working with faculty to make the most of this opportunity, Pam is afforded a unique chance to help instill writing as a centerpiece of students' learning, regardless of each course's discipline-specific peculiarities.

Reflection

As someone who has been both a faculty developer and a coordinator of writing across the curriculum, I too have experienced the payoff I attribute to Pam's cross-curricular partnerships in terms of increased ease of access to disciplinary classrooms and faculty. In particular, I found that faculty in the biological sciences have long used drawing as a tool for helping students learn about the interior and exterior organic world. In biology and physiology labs, for example, students draw pictures of, among other things, cellular structure and activity as witnessed through the microscope, and pictures of the skeletal, muscular, and organ systems of any number of animals, themselves included. The extent of their drawing is impressive. Likewise, I am impressed and, admittedly, somewhat befuddled by the fact that students don't seem to resist the requirement to draw in the same manner, and with the same vigor, they do the requirement to write. Even if students don't think of themselves as good at drawing, they will still give it their best shot in the lab. As a biology colleague once explained to me over coffee, "I find that in drawing biological systems at the level of the cellular system and the organ system, students show me what they know and don't know. Their drawings are quite revealing. Often parts of the whole are completely out of whack proportionally, reflecting the student's unbalanced understanding of the total process or system—they know the parts, but not the whole."

The problem with the activity from my collegue's perspective was that drawing, while extremely useful in and of itself, didn't take the students far enough in terms of helping them master the material. While the students almost always got their drawings to represent cell, organs, bones, and so on accurately, that level of control over the material did not ensure that the students could articulate their understanding in writing—when it came time for the test, they could draw the item requested but had a hard time writing about their new knowledge.

Like Pam, I used this concern about students' active learning as an opportunity to introduce written tasks to the drawing activities, ostensibly to help students prepare for exams. Doing so required that I sit down with the biology and physiology faculty members to discuss specific assignments and how they might fit into the lab work as well as the overall course design. The resulting discussion of course goals and desired student outcomes was enlightening for everyone involved. The faculty came away with class/lab/exam activities that helped to move students to the desired level of understanding and articulation; I gained WAC colleagues without coercion. Everyone was pleased.

Thematic Variation

In keeping with Pam's WAC focus, I want to suggest an additional activity that can find a home in the course activities notebook in any number of disciplines. A common assignment given in technical writing courses asks students to study a tool or a process and produce the instruction/procedures documents necessary for someone (usually a lay person) to use the tool or follow the process to its completion successfully. Without a doubt, there is value in having students engage in the type of close observation of detail needed to provide a reader with the requisite instruction for carrying out the task. When presented at this level, however, the activity is contrived. As a result, students get bored and complain, with some merit, that it doesn't reflect "real world" situations.

In an effort to engage students in the task of observing closely and trying to predict the problems another person might face in using a tool or following a process, many instructors add a more tactile, hands-on element to the assignment by having students construct the items they then describe. The operative logic here is intuitive: The builder is more familiar with an item than anyone else and should be the person best suited to describe it to the people who will use it.

My favorite example of this extension of the task is that of a colleague who teaches technical writing. Her students use Tinkertoys to construct an apparatus able to complete a specific task as determined by its creators. What emerges from the team's planning and building sessions often multicolored, rubberband-driven, Rube Goldbergesque contraptions intended to do things like turn a book's page, walk completed papers to the teacher's desk, rotate on a central axis, and other equally zany (and useless) tasks. But what also emerges are excited and engaged students who, in the process of writing instruction manuals, often discover that they have designed logistical nightmares. Usually the apparatus seems deceptively simple to document, until the team actually tries to recount the entire building process so that another team can successfully construct it. And usually the documents the teams write get down to specific details and provide users with the information they need. However, these instructions often have informational and procedural holes that cause their beta testers enormous headaches and send their authors back to revision sessions. More often than not, the instructions lack visual aids to provide readers with additional information about how the apparatus is constructed and what activity it performs. They assume that the users of the apparatus solve problems best by reading about them. A central tenet of technical communication, however, is that most readers benefit enormously from visually rich texts.

The Next Step, Drawing . . .

When required to provide visual representations of their apparatus, many groups produce flat, two-dimensional pictures that give a general overview of the object at best. These renderings relay little sense of the complexity of the object's design, nor, on a more mundane level, do they supply details on exactly where and how the Tinkertoy poles, wheels, and plastic fins join. In other words, the pictures do not provide much useful information for replicating the apparatus.

When required to produce a series of study sketches of the object (front, side, and top views; negative space studies; exploded views; extreme close-ups), however, the construction teams usually make important discoveries:

- "exploded" views of the object can serve in place of many repetitive steps in the construction directions
- close-up images help illustrate intricate relationships and construction steps particularly well
- studies from different angles can help predict where problems in replicating the apparatus will likely arise

With this increased understanding of their apparatus, the members of the design team are better prepared to revise their instruction manual for greater efficiency, audience accommodation, and use of visual materials. Frequently, the drawings made during this stage of the project do not appear in the final document; rather, they serve solely as discovery and problem-solving tools, in much the same manner in which architects, engineers, and artists use them (see Graves 1977; Chapter 8).

. . . Then Writing

An additional layer is added to this activity by encouraging students to write (informally), either when they take a break from drawing their object or immediately after they have finished their sketches. Useful writing prompts for this stage of discovery and reflection can be as simple as, "While drawing, what did you notice about your apparatus for the first time? Is this important?" Or, following group comparisons and discussion of the sketches, prompts can encourage students to reflect on the project's progress to date and to plan for the next stage of revision.

Back to WAC

Adding a layer of informal drawing-as-problem-solving to complex projects, such as the Tinkertoy project described above, provides students with heuristics for rethinking their preconceptions about the task at hand, for achieving a measure of critical distance, and for considering the needs of their intended audience. All of these are benefits that accrue to students in similar rhetorical situations in many disciplinary settings. For example, students in organic chemistry classes and labs are frequently required to draw molecular structures for the compounds they are studying. Their tendency to represent these structures in flat two-dimensional ways limits their understanding of how the structures affect and determine the actions and reactions that these compounds can cause and participate in. Adding informal drawing activities that require students to explore (in teams or individually) these chemical structures from a variety of visual perspectives provides them with more information about the interrelationship between molecular form and function. Informal, short writes and quick reflective notes are a natural partner to these drawing activities and provide writing faculty a convenient entry point for collaboration with their colleagues in the natural sciences.

Postscript

While often daunting, creating cross-curricular links is worth the effort, especially in terms of benefits to student learning and faculty cooperation. Yet, making connections across the curriculum through a focus on student writing may not always be the best approach for forming the relationships necessary to implement writing across the curriculum. As I have found in my efforts to get my writing agenda's metaphoric foot in the door of many disciplines, starting with the visual pedagogical tools that disciplines such as biology and chemistry routinely use has been effective. I ask questions about what helps students learn most effectively in these areas. I listen to my colleagues' responses and their usual segues into what students "still do not get" using these methods. Then, and only then, do I talk about how I address the same issues in writing classes and suggest that if by combining their visual strategies for the sciences and my verbal teaching strategies for writing we might create a more effective tool at our collective disposal.