

# Modeling

## *Seeing Ourselves through Our Students' Eyes*

**mod•el•ing** |'mädl-iNG| (Brit. modelling) verb: To display, demonstrate, or draw attention to as an example for others to follow or imitate. • To teach by example as in a role model, mentor, or expert-apprentice situation. Noun: A system or thing used as an example to follow or imitate. As a culture shaper, modeling operates on both an explicit and an implicit level. Explicitly, we may demonstrate techniques, processes, and strategies in a way that

makes our own thinking visible for students to learn from and appropriate. Implicitly, our actions are constantly on display for our students. They see our passions, our interests, our caring, and our authenticity as thinkers, learners, community members, and leaders. Adult models surround students and make real a world that they may choose to enter or reject.

There is always a sense of ongoing, extended inquiry present whenever I visit Natalie Belli's classroom, and today is no exception. Currently the room is busting at the seams with half-completed student projects related to the Triangle Trade, the trade route that existed between New England, Africa, and the West Indies during the colonial era. This is just one of the many long-term or ongoing projects Natalie manages as a teacher of humanities. When her fifth graders are not preparing for a mock town hall meeting, redesigning the city's recycling program, building their own shelters, collaborating with the New England Aquarium,

or writing books to go into the library at the Mukwashi Trust School in Zambia, they can be found curled up with a book on the large sofa in the back of the room, conversing with peers in a book club, or getting feedback on their writing from a friend.

While remaining faithful to the curriculum she needs to address, Natalie doesn't expressly worry about preparing her students for the state's standardized test. As a group, her students consistently exceed expectations for their performance on the state test, this even with a sometimes significant special needs population. Rather than focusing on the test, Natalie sees her main goals as empowering students as readers and writers, building a strong connection with both the local community and the world, and igniting the sparks of creativity, passion, and imagination that propel lifelong learning. Achieving these goals is a matter not only of providing powerful learning opportunities but also of modeling. In reflecting on her teaching, Natalie comments, "I want them to know that I am authentic, that I am true, and that I value them. If they leave me

a book [that they wish to share with me], they know I will read and comment on it, and those comments have to be authentic. They have to be genuine.”

The snow has melted in Marblehead, Massachusetts, and there is a hint of spring in the air as Natalie's fifth graders enter the room fresh from their recess outside in the newly minted warmth. Students chat, and Natalie holds brief side conversations with individual students as the class settles into their seats. As soon as Natalie begins to speak to the whole class, it is clear that she is presenting herself to her students as a thinker and learner, not merely as someone who will direct their actions and monitor their time. “You know how sometimes I get to thinking about something at night and it wakes me up and then I can't stop thinking about it?” Natalie inquires.

“Yeah,” a number of students respond, nodding their heads.

“Well,” Natalie continues, “last night, I woke up thinking about something that happened

yesterday.” With this brief introduction, I'm alerted to the fact that such personal stories of Natalie's thinking are not new to her students. The class seems well aware of Natalie's preoccupation with ideas as well as her proclivity for late-night ruminations. Her remarks also provide a powerful backdrop for the learning of the class in that her comments reveal for her students how her instructional plans come together.

Natalie explains the thought that kept her awake. “Yesterday, Josh said he was done with his book and he needed a new book. That planted a seed in the back of my mind that started me thinking, ‘Oh no, there is so much to do. I need to start new book clubs.’ And I started to think, ‘Oh no, we are behind. I need to keep up.’” With these words, Natalie demonstrates to her students just how much their words and actions play into her thinking. She lets her students know that she is not marching through a presequenced set of activities but that everything that happens in their classroom is a responsive act based on their learning needs.

In sharing the angst that woke her up, Natalie has captured students' attention and revealed herself authentically to them. Slowing the cadence of her voice and projecting a more even, less anxious tone, Natalie signals to the students that something different is about to happen as she continues her story of late-night thinking:

Then I thought of a time I was in camp, and we were hiking up a mountain. I was following our guide, and I got worried I wasn't keeping up, so I started walking faster and faster. When we got done with our hike, the guide said how tired he was. How he had never done that hike in that short a time before. And I said, "Really?" He said, "Yeah, I kept trying to keep up with you." And I said, "I thought I was trying to keep up with you!" Then he told me he didn't ever set a pace, that he always just tried to walk at the pace of the fastest hiker.

Natalie pauses to let the meaning of the story sink in for her students before making the

transition back to her concern about keeping up with the needs of the class. "And so I let Fletcher [her dog] out, and then I started to jot down my own thinking about our pace, about where we were at in our hike."

Natalie's recounting of a long-ago experience is much more than demonstrating an activation of prior knowledge. On the surface, her story of hiking has no connection to a student needing a new book to read or her general concern for shepherding the learning of the class. What the story represents is both a moral and a metaphor. In recalling it, Natalie is demonstrating that the things we learn from our life experience often transcend the experience itself. Natalie didn't just learn to walk slower; she learned something about pacing, unspoken expectations, and how the pressures we feel may come from ourselves and not others. She is demonstrating that in recalling events, one can also recall larger lessons that might apply to new situations. Interestingly, Natalie doesn't spell out these lessons for her students, but she does allow time for their meaning to sink in before picking up the hiking story as a metaphor

that guided her next actions in thinking not about “pressure” and “needs” but about “pace” and “our hike.”

Sarah, clearly captivated by the tale of night awakening, recollections, and a dog, raises her hand to ask, “What time was it?” “It was 2 a.m.,” Natalie replies as she reaches for her journal. Opening her journal to last night's entry, she slides the book under the document camera and flicks it on, illuminating the whiteboard with her late-night jottings:

- Writing a library
- Making cultural connection through poetry
- Mukwashi Trust & learning together
- *Hatchet*. Crocs, snow, otters and tribes
- Pen pals and learning about culture
- Found out that they [Mukwashi Trust School] want to build a library
- We decided we could write them one

- The birth of our snow poems
- Reflections
- What we needed to know about Mukwashi students
- What we wanted Mukwashi students to know about us
- Photographs, illustrations, Ron Berger and Austin's butterfly. Revisions
- Thinking routines: 321, CSI, STW, Ladder [of Feedback] Protocol
- Collaborating w 4th graders and 2nd graders

No doubt Natalie's students were already familiar with the fact that she kept a journal. Furthermore, the idea that she would share her thoughts with them seemed not to be unusual. Yet I am struck by the power of this simple act and what it communicates. First, in keeping her own journal, as she asks her students to do, and using it authentically as a means of capturing her thinking, Natalie serves as a model for

students to emulate. She is not merely showing students how to write in a journal; she is modeling its actual utility. Her story of waking, worrying, thinking, and then writing in her journal highlights for her students how to integrate a journal into one's life. Second, in displaying the journal page in its informality with side notes, highlighting, and use of red pen, she makes her thinking visible in all its messiness. Third, there is a transparency, authenticity, and vulnerability to this sharing that forges a bond between teacher and student. This is enhanced because Natalie has made it so clear to her students, through the modeling of her thinking, how she plans for learning in their classroom by constantly taking stock of where the class is, their needs, and a puzzling-through together of where to go next.

Deciphering her notes for the class, Natalie explains, "I started jotting and thinking about all the things we have been doing, what we have done this year, and accomplished. Not about being behind, but about where we are and what we have learned. I started thinking about Mukwashi [the school in Zambia where Natalie

volunteers and for whom the students are creating a library] and where we started. I started just writing down some words that came to mind." Natalie reads through the list, expanding and clarifying some of the things she has written. When she has finished, she raises her arms toward the ceiling in a gesture that says, "Look at how much we have accomplished."

Leaning against the table where the document camera resides, Natalie lets out a sigh of contentment. "You know sometimes when it is going so fast and life is moving forward, it takes slowing down and taking time to notice where you are," she reflects. Looking around the room, she adds, "So I am going to pause and let you do some thinking about this process. So let's just think about what all of this meant to you." She pauses to give students time to think and then adds, "Talk to me about your reflections. Use your language of thinking. What do you value about where we are and what we have done?"

As students ponder Natalie's request, she moves around the room and finds an empty seat

among the students. Ava raises her hand and, with a nod from Natalie, begins to speak. “I really value how we are helping them [the students at Mukwashi Trust School] learn about snow. I think it is nice that we can put some images from our lives into theirs through writing. And then maybe they will write [us] back something about what we don't know... We've never been [to Zambia]. Maybe they will write us about the mud seasons.” Following on, Sean adds, “Sort of like Ava's [comment]. I value. I realize how much different one thing we might think is common and doesn't really matter might be so different to someone else.” Natalie elaborates on Sean's remarks: “Something that we take for granted perhaps. Isn't that interesting. That is how I felt as well when I was over there. What we take for granted or just assume someone else might know.”

In these students' comments we see the effects of Natalie's previous modeling. Early in the year, Natalie introduced the Ladder of Feedback (Perkins, 2003) as a structure for both giving feedback and responding to others (see appendix B). Using the ladder, respondents

begin by asking any clarifying questions they might have; they then state what they value about the work or the object of reflection before moving on to concerns, wonderings, and suggestions. Natalie took time to explicitly model use of the Ladder of Feedback using a fishbowl technique (Miller & Benz, 2008) with a small group while the rest of the class observed. Natalie also uses the Ladder of Feedback in her own conferencing with students. This demonstrates to students the authenticity of the steps—this isn't just something students do but is also a technique that adults use in giving feedback—as well as Natalie's commitment to the process. In students' comments about the class's activities, we see how they have picked up the language of valuing as both positive and useful.

As the sharing continues, more students offer their ideas about what they have learned through the class's work with the Mukwashi Trust School: the value of sharing with others, learning about new cultures, and being surprised along the way. Ben, a highly able and mature student, then takes the conversation in a

slightly different direction, reflecting on the actual writing of poems about snow to share with the students in Zambia: "I thought it was hard. I do value that we were teaching them stuff about snow. But I thought it was really hard to write poems. You know how you said it just flows. I tried to do that," Ben explains ("Me too" another voice in the room echoes), "but it ended up looking just really weird. I just wrote down everything that came to my mind, and it didn't look right."

Natalie rises from her seat and begins a dialogue with Ben:

**NATALIE:** This is my question: Did you feel safe in knowing that you had opportunities for revision and to talk to your friends?

**BEN:** Yes, Anna helped and so did Sean, and AJ did one day. I did have a lot of contribution from...from (*another student whispers the word "peers"*)... peers.

**NATALIE:** Can I ask specifically how did they help? Did they just say, "Oh good job," or how did they help?

**BEN:**

They told me some words could be changed and also on the drawing. I got a lot of help from Sean especially. There is a very different way of drawing things like buildings. The way I draw is I mostly just draw people. No buildings. Just mostly focused on people. So I'm not used to drawing buildings, and that was harder for me.

**NATALIE:**

So I am wondering then, with that observation, if this were a second project if you would be taking a photograph of something that would be more your style. I think it very interesting that you said it was difficult because for me I was thinking, oh I'm going to have them writing about snow and that might seem easy or simple.

**BEN:**

No. It was difficult.

In this exchange, Natalie doesn't try to minimize Ben's discomfort or that of others. Instead she directs the discussion to what strategies and supports existed to move beyond the initial discomfort. In doing so, Ben's reflections become a model for others of how to deal with difficulty and challenge. The fact that he is a



highly able student demonstrates that all learners face challenges. His use of his peers to facilitate his learning, a process constantly encouraged by Natalie, reinforces the message that learning is as much a collaborative endeavor as it is an individual enterprise.

Natalie directs the class's attention to their current study of the Triangle Trade, making the connection between their past and current efforts in writing poetry. "As we get ready for our simulation of the Triangle Trade, you will be writing a poem that captures the essence of the commodity you chose and its role in the trade. To help you generate some ideas, you might want to use one of the thinking routines to really help you understand it and to gather some ideas." Natalie then reviews some of the thinking routines students might find helpful, such as See-Think-Wonder; 3—2—1 Bridge; and Step Inside (see Ritchhart et al., 2011).

To give students a better feel for the creative process she is offering, Natalie shows them, by thinking aloud for them, how these processes might look. "I tried this out. I tried this out with

one of Tom Feelings's pieces of art [from his book *The Middle Passage*] to look at and stare at for a while to just think." Natalie slides a page from the book under the document camera, and a dramatic pen-and-ink drawing of a ship is revealed on the screen. Feelings's drawings combine realistic scenes overlaid with evocative spiritual imagery as if the ghosts of the past inhabit the scene. "So, if my cargo was 'the enslaved,'" Natalie offers. "If that is who I am. I wanted to really start thinking and step inside that person or persons and think about what was it like on that ship?" She then extends her questioning: "What was it like crossing that Middle Passage? What was it even like before that in my own village I left?"

Keeping in mind the goal of understanding what it might be like to be the cargo in the Triangle Trade, even if that cargo might be inanimate, Natalie begins to think aloud for her students using the routine See-Think-Wonder as a loose framework. "Looking at this picture, I'm looking at these two people with their mouths open," Natalie offers as she points to two figures in the drawing. "I'm wondering what they are saying. I

wonder what is coming out of their mouths. I'm looking at their eyes, and they look really, really frightened. They look like they are coming right out of the ship, but at the same time they look like they are in the water.” Directing students' attention to another part of the drawing, she adds, “And it also looks like there is an image of the moon, the moon and sun almost eclipsing. Then I looked at the ship, and the ship itself looks like a musket or rifle, and this makes me think that there is so much death in this picture.” Because her focus is on capturing feelings and mood to provide a basis for students' poetry, Natalie's quick think-aloud focuses on these elements. A careful analysis of the artwork isn't needed, as students have already read the book together and are familiar with the Middle Passage.

Using her See-Think-Wonder as a starting point, Natalie continues her think-aloud to demonstrate how she turned those initial thoughts into words that might form the basis for a poem: “So what I said to myself was, all right, I am going to start my thinking with a 3, 2, 1 [3 words, 2 questions, 1 metaphor]. This was

just the start of my thinking about ideas for my poem.” Replacing Tom Feelings's image under the document camera with that of her journal, Natalie reads the 3, 2, 1 that she has recorded:

1. Bondage. Property. Inhuman.
2. Will I survive? Do I want to survive?
3. I'm a submissive animal that shivers in the bowels of the ship.

“And that was my start of thinking about this. You might want to use other routines or combine routines to help you get started with your thinking,” Natalie concludes. Before sending off students to work independently, Natalie shares one last model, a trite bit of rhyming poetry on the Triangle Trade taken from an old textbook. As Natalie reads the poem, her students' eyes widen at the poem's banality. I notice many students' backs stiffening as they listen. “I know,” Natalie empathizes. “That's not really what we've come to expect from good poetry, is it? You'll be able to do much better.”

Students get to work on their ideas, some thinking aloud with peers. Just as Natalie had modeled, students use various strategies to generate words, phrases, and ideas for their poems as a starting point rather than jumping into writing a poem. Natalie moves around the room talking with students about their ideas. As students begin the actual writing of their poems, Natalie conferences with them using the Ladder of Feedback.

Marcus has chosen molasses as his commodity and is eager to share his poem with Natalie. After he has read the poem aloud, Natalie works her way up the Ladder of Feedback, beginning with clarifying questions. “Could you clarify for me how you started?” she asks. Marcus responds that he created a concept map to get his initial ideas out. Natalie reads a bit of the poem aloud: “I am the running engine of the huge Triangle Trade...I am crammed into a tiny cask, on a tiny boat, going on a not so tiny journey.” Moving up the ladder, she responds, “I value the figurative language you have used and the sensory images. I like the repetition, the alliteration.” Moving to concerns, Natalie points

out a few lines in the poem that she feels could be made stronger. “Maybe you need to play around with some different language here,” she suggests as she reaches the top of the Ladder of Feedback. It's a brief interchange, but yet another authentic model of a process she wants her students to own.

As the end of the school day rapidly approaches, Natalie stops to confer with one last student, a particularly shy boy who doesn't often speak out in class. As she reads the draft of his poem about the commodity of guns, she gasps. “Can I share this? This one line?” she asks. Ryan nods his head yes, and Natalie calls out, “Class, listen to this.” She pauses for emphasis and then slowly reads, “I am the spine of war.” “That is such a powerful metaphor and image,” she says to Ryan as she stands, once again modeling her love of language and delight in what her students produce.

One certainly wouldn't be alone in asking, How can you possibly get fifth graders excited about writing poetry connected to the Triangle Trade? Yet Natalie accomplishes this with ease, making

the task feel new, meaningful, and important. As students begin to pack up, Natalie gives some parting feedback to the group: “Great efforts, everyone. I can't wait to see how these poems develop. So many good ideas, and your use of metaphors and language is just blowing me away, guys. You've really stepped inside the cargo you are representing.”

It is easy to be captivated by the learning going on in Natalie's classroom. There is a level of engagement with ideas, curiosity about the world, support for the learning of others, desire to challenge oneself at the highest level, and genuine pride of accomplishment that permeates the class. It is a learning community in the best sense, dedicated to raising the individual up with the group. While energy abounds, it is also a calm space. To understand how Natalie accomplishes this, it is instructive to look at how she teaches both implicitly and explicitly through her modeling. Teachers often think of modeling as demonstrating, standing up before the class to show them a process or procedure that they want students to take on. This is explicit modeling. But there is also the

modeling of who we are as thinkers and learners, our implicit modeling. We see in Natalie's teaching a range of modeling practices that span this continuum from implicit to explicit. In formal terms, these can be identified as

- Dispositional apprenticeship: being a role model of learning and thinking
- Cognitive apprenticeship: making our thinking visible
- Gradual release of responsibility: modeling for independence
- Interactive modeling: learning from examples, practice, and reflection

Because modeling is almost a hidden dimension of teaching, understanding each of these practices more fully can be useful as we seek to create a culture of thinking in our schools, classrooms, and organizations. In addition, understanding teaching through modeling helps us better understand the power, nuance, and complexity of incidental learning while

shattering the paradigm that the practice of teaching consists largely of the delivery of information.

## **Dispositional Apprenticeship: Being a Role Model of Learning and Thinking**

In the 1970s, Dr. Daniel C. Tosteson, dean of the Harvard Medical School, was already thinking about how computers would revolutionize medicine. In addition, he was concerned with the focus of medical schools on transmitting vast amounts of information for students to ingest and spit back on exams. He knew that this kind of training didn't make for good doctors, and he wanted to shift the focus of medical education from the acquisition of knowledge alone to the ability to use that knowledge to solve problems. Largely through Tosteson's efforts, the "case study method" became the norm for learning not only at

Harvard but also at medical schools around the world (Weber, 2009). Speaking at a meeting of medical school deans, Tosteson (1979) told the audience, "We must acknowledge again that the most important, indeed, the only, thing we have to offer our students is ourselves. Everything else they can read in a book or discover independently, usually with a better understanding than our efforts can convey" (p. 693). He went on to say, "I believe that the modern jargon [for this] is 'role models.'"

If speaking today, Tosteson might have changed "read in a book" to "get online." However, his words, spoken nearly four decades ago, are no less prescient. Teachers are indeed role models. We inspire. We teach by example. And we manifest for our students what it means to be a thinker and a learner. Working with our colleagues, we provide an intellectual life into which our students may grow. However, it would be a mistake to equate "role model" with "exemplar." No one is perfect, and although we might have personal heroes or mentors whom we aspire to be like, seldom do they embody every quality to perfection. Indeed, research has

shown that people in new learning situations don't seek out total role models, but use partial models that embody specific qualities, practices, or behaviors, and learn from what those models have to offer (Filstad, 2004). In thinking about being role models for our students, we need to think about what we have to offer through being the best of who we are.

Another reason why we must avoid the notion of being an exemplar is that it actually goes against the grain of what it means to be a thinker and a learner. Learning is messy. Thinking can run into dead ends. We get stuck in solving problems and have to get ourselves unstuck. Our decisions often try to balance competing needs, but those decisions may seem less balanced in hindsight. Thinking and learning don't require perfection as much as they require constant monitoring, assessment, revision, and reflection. Indeed, it could be argued that little is learned when things go perfectly. Our mistakes offer some of the best avenues for learning. What we want to show our students is this reality. How we handle mistakes. How we learn from experience. How we plan but also

how we adjust midstream. How we reflect. All this, as well as the questions that burn inside us and drive our curiosity.

Writing about passionate teachers, Robert Fried (1995) says that they “are always taking risks, and they make at least as many mistakes as anybody else (probably more than most). What's different is how they react to their mistakes: they choose to acknowledge and learn from them, rather than to ignore or deny them.” Fried explains the effect these actions have on classroom culture: “they help make the classroom a safer place for students to make their own mistakes and learn from them” (p. 27).

Of course, sometimes vulnerability can be hard for teachers to model. Our authority, ego, and identity can get wrapped up in the expertise we possess, and this kind of exposure can feel to us as though we are losing our hold on that identity. The important thing to remember is that in modeling your learning, you are not giving up any of your expertise. In fact, what you are modeling is the desire to develop even

more expertise. If students seem shocked that we “don't know” something or that we made a mistake, we need to quickly disabuse them of the notion that being learned means not making mistakes or covering up for a lack of knowledge. We, as well as our students, need to lay claim to the power of “not knowing” yet “still seeking.”

We can think of this kind of role modeling as providing students with a dispositional apprenticeship. In any apprenticeship, an individual learns from someone who is more skilled in a particular target area. Apprentices are newcomers to a community of practice who have the opportunity to advance their skills through their organized participation within that community (Rogoff, 1990). In a dispositional apprenticeship, our students have the opportunity to learn from us the traits, characteristics, and values of a mature and dedicated learner and thinker. Through our modeling, we have the opportunity to nurture the very attitudes, values, and behaviors we want to see in our students.

While a learner's observation and reflection on

what is observed is a useful part of any apprenticeship (Cruess, Cruess, & Steinert, 2008), our learning may occur on a more subliminal level as well. Recent neurological research has shown that human beings are hardwired to experience events and feelings through observation alone, due to what are called mirror neurons (Hari & Kujala, 2009; Winerman, 2005). This neural mechanism is both automatic and involuntary. Merely watching someone engage in an activity can cause our neurons to fire as if we were engaging in it ourselves. Think of your automatic response when you witness someone bumping his head. Interestingly, studies have shown that we are even able to distinguish the intent of actions as well. In studies, subjects responded differently to a person picking up a teacup to drink than they did to a person picking up a teacup to clear the table.

Mirror neurons fire most strongly for people with whom we identify (Immordino-Yang, 2008), which may also explain why modeling is such a powerful teaching tool, as Tosteson and others have recognized. They also may help

explain why we recognize that curiosity is often contagious and why being treated with respect causes us to return the sentiment. We are literally programmed to pay attention to and learn from others.

Because apprentices learn largely through their informal, ongoing, and perhaps even involuntary observation of experts rather than through direct teaching, it is important to acknowledge that as teachers we are always modeling. We are always on. Our students will take note of the dispositions we display whether we would like them to or not. Ted and Nancy Sizer (2000) captured this sentiment nicely in the title of their book *The Students Are Watching*.

In Natalie's classroom, we see the modeling of dispositions in her telling the story of her late-night waking. Looking at the metanarrative being communicated through her story, we can identify a host of messages about thinking and learning. Her story revealed to students that thinkers worry and get concerned sometimes. At the same time, she demonstrated how not to get

caught up in such worries or to let them control you. By using her journal to make notes of all that the class had accomplished, Natalie showed students how to step back and get perspective on a problem rather than jumping in to solve it too quickly. She also exhibited how to question assumptions, in this case about pacing.

Furthermore, she modeled for them what it means to be part of a learning group by working to identify the right pace for the group rather than trying to set a pace that others might not be able to match. Later in the lesson, Natalie modeled her passion for language. Throughout this lesson and in others I have observed, I have seen her exhibit a dedication to understanding, respect for others, and a desire to learn. I witnessed these dispositions becoming a part of students' repertoire in the class I visited.

By putting herself on display in all her authenticity, Natalie gave her students a chance to learn from her. She didn't need to plan for this or devise a lesson for her students. She just needed to "be" it. In fact, at the end of the day, Natalie apologized to me for the lesson, saying that this wasn't what she had originally planned,



but that it was just where she and they were at this point in time, and she had to be true to that. This is perhaps the hardest part of a dispositional apprenticeship: others can only learn from what we have to offer. We can't fake this kind of modeling, but we can, and must, open ourselves up to it. We must allow ourselves to be genuine. This genuineness lies at the heart of Parker Palmer's work and his book *The Courage to Teach* (1998). The courage he speaks of is allowing ourselves to be genuine in the classroom and to bring ourselves to our teaching. This means we must bring our vulnerabilities as well as our strengths.

In a community of learners, teachers are not the only models, of course. Students are influenced by their peers and by seeing their attitudes and dispositions on display. In Natalie's class, Ben's reflections on his struggle writing and illustrating his snow poem provided a model for others. Natalie very astutely moved Ben's reflections from a focus on his frustrations and negative feelings about the process to how he dealt with those difficulties and challenges. By directing his attention to those aspects, Natalie

was able to provide students with a model of how even a strong student faces challenges and must persevere through them.

Ted and Nancy Sizer (2000) argue that it is not just teachers who model values and dispositions; it is also the institutions themselves.

All high schools teach. Their rules and routines are lessons of substance and value. Thoughtfully or unthinkingly, students and teachers ingest these values, thereby learning to live by them. These lessons may promote optimism or cynicism, hard work or shortcuts...To find the core of a school, don't look at its rulebook or even its mission statement. Look at the way the people in it spend their time—how they relate to each other, how they grapple with ideas. Look for the contradictions between words and practice, with the fewer the better. Try to estimate the frequency and the honesty of its deliberations. (Kindle locations 243,

In short, for institutions to be effective models of the values they espouse for their students, those same values and expectations must hold for the adults. Because institutions can never adequately garner respect, courage, discipline, curiosity, honesty, integrity, and so on through enforcement alone, their best hope is to model these dispositions and to make the school a home for their values. Of course, to do this requires first identifying the values, dispositions, and behaviors we want to see in our students and then turning the mirror on ourselves to see if we are displaying those same virtues.

## **Cognitive Apprenticeship: Making Our Thinking Visible**

In the training metaphor of learning that

dominates much of what happens in the world of education, novices are seen to be lacking in skills that they must first acquire before meaningful participation can occur. While in training, individuals may be kept separate from experts or more advanced members and given smaller, atomized tasks to do in preparation for “later”—but in some instances, that later never comes. Furthermore, the tasks assigned may bear little resemblance to the authentic tasks engaged in by experts. This is markedly different from an apprenticeship, in which newcomers are regularly given opportunities for meaningful guided participation in an authentic task within a support community. In a true apprenticeship, complex and important skills are learned contextually and often informally through observation, coaching, and successive approximation (Brown, Collins, & Duguid, 1989). The apprenticeship model has long been championed for the authentic learning opportunities it provides (Brown et al., 1989; Dewey, 1916; Lave & Wenger, 1991; Perkins, 2009; Rogoff, 1990; Vygotsky, 1978; Wertsch, 1995). We will discuss the idea of authentic learning more in the next chapter, on the

cultural force of opportunities. Here I want to draw a distinction between the cognitive apprenticeship model we are about to explore and both traditional apprenticeship learning and the dispositional apprenticeship discussed in the previous section.

In the dispositional apprenticeship, we extend the traditional apprenticeship model to suggest that the object of learning need not always be a particular skill set, such as cabinetmaking, but can also include the habits, traits, qualities, and dispositions of the expert. Such dispositions are constantly being modeled, thus providing ample opportunity for the novice to take them on. The dispositional apprenticeship is quite informal, always occurring, and often understood in the sense of the expert/teacher acting as a role model. This means that at times neither the apprentice nor the expert may even be fully aware of what is truly being passed on.

In defining a cognitive apprenticeship, we broaden the concept of apprenticeship even further, suggesting that mastery and becoming more expert is more than a matter of acquiring

skills but must also include an understanding of how experts think: how they work through difficulties, how they make judgments about quality, how they identify problems, the decision-making processes they employ, and so on. However, these things are not as easily observable as the explicit behaviors and actions in a traditional or even a dispositional apprenticeship. In fact, the very thing to be learned in a cognitive apprenticeship is too often hidden from observation. Consequently, a cognitive apprenticeship requires the expert/teacher to assume a more overt role in modeling as Collins, Brown, and Holum (1991) explain, "In cognitive apprenticeship, one needs to deliberately bring the thinking to the surface, to make it visible, whether it's in reading, writing, or problem solving. The teacher's thinking must be made visible to the students and the student's thinking must be made visible to the teacher" (p. 3).

As Collins et al. (1991) note, making thinking visible lies at the heart of a cognitive apprenticeship. Furthermore, a robust apprenticeship is a two-way street between the

teacher and the student. The more expert practitioner must open himself or herself up to illuminate and demystify the thinking process for the learner. This overtness allows the learner to observe, take on, and begin to practice these thinking moves. The student, in turn, must make his or her thinking visible so that the teacher can coach, correct, offer feedback, and provide support as the student gradually takes on these moves.

Without an understanding of the thinking that lies behind an expert's actions, it is all too easy for learners to focus on the wrong things, develop rigid procedures, or engage in mindless mimicry. I'm reminded of a story an acquaintance once told me, and that I've since heard repeated elsewhere, that beautifully captures the ease with which these kinds of errors can occur. My colleague was invited to an Easter dinner with friends. Sitting down to the exquisitely laid table, the guests all expressed their approval as the hostess placed an amazing glazed ham in the center of the table. The hostess remarked how she had baked it using her grandmother's recipe faithfully. During the

meal, everyone commented on how tasty the ham was, and my colleague inquired about the recipe.

The hostess went into vivid detail of the process: cutting off the ends of the ham, carefully scoring it and studding it with cloves, roasting it slowly, and of course the basting it every fifteen minutes with the prepared glaze of apricot jam, bourbon, lemon juice, brown sugar, and butter. Acknowledging that the recipe was indeed a success, my colleague then asked, "So why do you cut off the ends of the ham?" The hostess's brow knotted into a quizzical expression as she slowly replied, "I'm not quite sure; I got the recipe from my mother." Her mother, who was also at the Easter table, then chimed in, "I'm not sure either. I just remember watching my mother fix this every Easter and on special occasions. I watched her carefully and wrote down everything exactly as she did it, since she didn't work from a recipe."

Their curiosity now piqued, the hostess's mother got up from the table and called her mother, the grandmother, on the phone to

resolve the mystery. Once holiday greetings and pleasantries had been exchanged, the grandmother quickly resolved the group's quandary: "Oh, I always cut off the ends of the ham because the pan I had at the time was never big enough to fit the whole ham."

Because the grandmother hadn't made her thinking visible to her daughter, her daughter picked up on a meaningless action and incorporated it into her schema of how to prepare the ham. This mindless repetition was then handed down to the daughter as it became formalized in a written recipe. Of course, learners can question experts about their thinking, provided there exists a relationship where this is possible and given that the learner recognizes the importance of understanding the thoughts behind actions and not just the actions themselves.

We saw Natalie providing students with a window into her thinking as she thought aloud about the process of writing poetry. The class's topic, the cargo of the Triangle Trade, might have resulted in superficial, uninspired writing

if Natalie had framed the assignment with a bunch of constraints about how long the poems must be, what must be included, and so on. Instead, Natalie focused on the authenticity of writing poetry and provided her students with an apprenticeship into this process. Therefore, her efforts began not with requirements but by modeling to demonstrate how to get inspiration in advance of writing and how to gather potentially evocative language that might be useful in writing. Natalie used a drawing by Tom Feelings from his book *The Middle Passage* for this demonstration. She thought aloud for her students while looking at this picture, using the See-Think-Wonder routine loosely as a scaffold. This, too, was a model of how thinking routines are not mere activities for students but tools that all learners can make use of when appropriate. Finally, Natalie segued into using the 3—2—1 Bridge routine (minus the bridging component). It is important to note that students were already familiar with both of these routines. Thus Natalie wasn't demonstrating the routines. She was demonstrating how to gather inspiration and language prior to writing.

What Natalie did is sometimes referred to as a “think-aloud” (Davey, 1983) or “real-time modeling” (Barell, 1991). It is a strategy often used by teachers of reading to model reading comprehension, and may also be referred to as “interactive comprehension instruction” (Lapp, Fisher, & Grant, 2008). Although quite commonly used in elementary schools, it is a less common teaching practice in middle and high schools, despite its effectiveness for helping learners deal with complex discipline-specific texts (Lapp & Fisher, 2007). The strategy is not limited to reading, either. Its use extends to math (Collins, Brown, & Newman, 1989), behavior management (Camp, Blom, Heber, & Doorninck, 1977), the development of the executive function of the brain (Willis, 2011)—and even the baking of holiday hams! In short, it is the strategy of choice when learners need to learn how to think like experts.

Fisher and Frey (2008) point out that such “modeling does not mean providing explanations or questioning students; it means demonstrating the way experts think as they approach problems” (p. 34). Modeling differs

from traditional didactic teaching in its embeddedness and authenticity. As Bandura (1986) states, “Learning cognitive skills can be facilitated simply by having models verbalize their thought strategies aloud as they engage in problem solving activities” (p. 74). He goes on to state the importance this has for struggling learners: “Children and adults who suffer deficiencies in problem solving learn effective strategies by observing how successful models go about gaining information for evaluating alternatives” (p. 103).

Using this premise of making thinking visible so that others might learn from its example, several well-researched and effective programs have been designed. One is the Making Thinking Visible approach (Ritchhart, Church, & Morrison, 2011) developed by my colleagues and me at Project Zero at the Harvard Graduate School of Education. Another example is the Paired Problem Solving technique developed by Arthur Whimbey and Jack Lochhead (1999) to facilitate the development of mathematical problem solving. Using this technique, a problem solver verbalizes his or her thought

process with the encouragement of a listener. The listener solves the problem with the problem solver, relying only on the processes the problem solver has articulated. If errors emerge, then the listener alerts the problem solver but does not provide a solution. This constant verbalization of one's thinking in the presence of another externalizes a process so that it can become the object of attention and refinement. Over time, the external verbalization becomes internalized in the form of self-coaching and monitoring.

## **Gradual Release of Responsibility: Modeling for Independence**

In the apprenticeship model, the goal is for the apprentice to gradually take on the performance of the expert/teacher—in other words, to achieve independence. This is as true of the cognitive apprenticeship as it is for a more

traditional, skills-based apprenticeship. But this control doesn't happen by chance; it must be carefully nurtured. First, teachers must identify the specific cognitive processes related to the task at hand and make those visible to students, often identifying them by name. Teachers move from this initial modeling of the cognitive strategies to coaching and scaffolding students as they try out these strategies. Finally, teachers strategically fade away and reduce their supports as students gain independence, encouraging reflection at the end of the process (Collins et al., 1991).

Reciprocal teaching, developed by Palinscar and Brown (1984), is a good example of this process. In deconstructing the mechanisms of effective reading comprehension, they identified four key processes: formulating questions based on the text, summarizing the text, making predictions about what will come next, and clarifying difficulties with the text. (The steps are not always done in this order.) These processes are explicitly taught to students with the teacher modeling the processes initially, then coaching and scaffolding students as they use the

strategies. As students become more competent with the processes, the teacher's support fades, allowing students to take increasing control. Eventually, students are expected to use this process in small groups to collectively read through text, and later as an independent strategy.

A crucial component that underlies the power of this method is that the cognitive processes students are learning are both authentic to the task (they are in fact what good readers do naturally when reading challenging texts) and that the processes are highly transferable across a variety of contexts. Thus students are learning a skill they can take with them beyond the classroom. Contrast this with teaching students how to construct a trifold display for the results of their science project. Such a task, though important in the moment, is highly specialized, and may be more about meeting grading requirements than about learning an important cognitive skill.

The design and use of thinking routines, something we take up in [chapter 7](#), fits this

model of a cognitive apprenticeship that moves learners toward independence. The routines identify key cognitive processes effective learners use in certain situations, and then make those thinking moves explicit for learners (Ritchhart et al., 2011). Teachers may use the routines to help students explore content or work with ideas, but the ultimate goal is that students will take these on as tools for their independent use. Having frameworks, structures, or routines for thinking on which to draw facilitates learner independence. As Fisher and Frey (2008) point out, “we must give students supports that they can hold on to as they take the lead—not just push them onto the path and hope they find their way. These supports include models of the kind of thinking they will need to do” (p. 33). Therefore, it is our cognitive modeling that is more likely to help our students grow into productive thinkers than the mere modeling of tasks and procedures.

We see this happening beautifully in Natalie's classroom, on several fronts. The Ladder of Feedback is an explicit cognitive tool that identifies key moves in the process of



structuring feedback. Early in the year, Natalie overtly modeled using the Ladder of Feedback with students through the use of a fishbowl technique. This technique involves gathering students in a circle around a group or a pair to watch a process unfold in real time. The individuals in the fishbowl are engaging in the process authentically so that others may observe and learn from it. Observers are specifically asked to pay attention to the steps, transitions, and language of the process. Once Natalie had modeled a writing conference with a student in the fishbowl, students were given the opportunity to practice with a partner. Their practice and modeling for each other occurred on an ongoing basis. Natalie consistently uses the Ladder of Feedback when conferencing with students, giving them a constant opportunity to learn. In addition, the ladder is used by the class as a structure for commenting. This gives Natalie an ongoing opportunity to coach students in its use. By the time I observed in Natalie's classroom in the spring, her students were working quite independently with this structure.

Natalie's use of thinking routines follows a similar trajectory. Having already introduced and used the routines numerous times, Natalie was able to turn responsibility over for their independent and flexible use during the poetry-writing process. To judge if our modeling of a cognitive process is successful, it is this level of independence that we want to look for in our students. If students are not making use of the cognitive tools we have modeled, perhaps they don't see their utility, or perhaps we haven't given them the opportunity to acquire independence.

This sequence of moving students toward independence is also referred to as the "gradual release of responsibility," or GRR (Pearson & Gallagher, 1983). Although this model is often used for developing independence in classroom procedures and work processes (Fisher & Frey, 2011), it is certainly useful for promoting independence in thinking as well. Its steps are quite similar to that of a cognitive apprenticeship: (1) focused lesson providing purpose and modeling, (2) guided instruction in which the learner is supported, (3) productive

group work in which skills are transferred, and (4) independent tasks allowing students to demonstrate their skill. Coaching, though not specifically identified as a step, occurs with the guided instruction and group work phases. A key aspect of the GRR model is that teachers must create opportunities for the gradual release over time and not expect it to occur right away. This means that the GRR model has to be a deliberate goal of instruction and a conscious piece of the teacher's planning.

## **Interactive Modeling: Learning from Examples, Practice, and Reflection**

The three preceding types of modeling discussed have focused primarily on the development of students as thinkers. By modeling for our students the dispositions and cognitive processes that are important for increased autonomy and independence, we help

to build individual competence as well as a collective culture of thinking. However, these three ways of modeling are not the only ones in which teachers engage. As teachers, we often want to model things other than cognitive processes—for instance, how to do a particular activity or practice a social skill. In fact, this kind of modeling of “how to do it” is what often comes to mind when teachers first hear the word “modeling.”

Although this kind of modeling takes place frequently in classrooms and is well known to teachers—in fact, some may even suggest that it is a hallmark of teaching—it is not without its difficulties. Too much modeling of skills, procedures, or actions can lead to rote learning and imitation, and can inhibit creativity and original thinking (Haston, 2007). What elementary teacher has not had the experience of modeling an art activity and having a large number of students imitate her example?

It is interesting to note how Natalie avoided this trap in her own modeling with regard to the Triangle Trade poems. First, Natalie focused her

modeling on the creative process and not the product. She showed students how she got her thinking started and generated potentially useful language, but she didn't turn that into a poem. Although she did share a model of a poem about the Triangle Trade, it wasn't actually a very good one in that it lacked emotional depth, resonance, or the use of powerful language and imagery. Natalie was, however, able to pull out some positive features of the poem, such as its inclusion of historical information and description of the trade route. By combining the model poem with the process, Natalie was able to articulate for her students what their poems should include.

Another strategy teachers use to avoid students' tendency to imitate is to provide multiple models. Rather than all being exemplars, sometimes these models will have different strengths. By analyzing such models, students are able to discern elements of quality and different approaches to achieving that quality that they may combine in creating original work. Of course, in some instances imitation is desired, as in handwriting, learning a movement

in sport or how to throw a ceramic pot, and so on. It is when we desire original or creative expressions from students that we have to guard against imitation.

Another challenge with demonstration modeling of the "This is how you do it" variety is that it often flounders if the "it" being demonstrated has any degree of nuance or complexity. An alternative to this "show and tell" type of modeling is the "interactive modeling" technique developed as part of the Responsive Classroom approach, a social and emotional development program for schools (Wilson, 2012). Interactive modeling involves seven steps: (1) stating the purpose, (2) modeling the behavior, (3) explicit discussion of what students noticed as the teacher modeled, (4) a student (or small group) modeling of what the teacher modeled, (5) discussion of what was noticed in that model, (6) practicing by all students, and (7) feedback to the group.

It is not hard to see why this more deliberate type of modeling might be effective. It incorporates many aspects of good teaching,

such as setting a purpose and context for learning, analysis of and attention to key criteria, guided practice, the gradual release of responsibility, and providing feedback. The two rounds of “noticing” are particularly noteworthy because this analysis is developing students' capacity to learn from models in the future by identifying key elements and features that must be present in replicating the model. This is similar to the fishbowl technique used by Natalie in introducing the Ladder of Feedback. Of course, such modeling takes more time than a simple demonstration. Teachers will need to think about what they are modeling and determine whether this is a case where it is important to invest time to make time. For instance, it may well be worth the investment to model effective listening, how to disagree with someone's point respectfully, how to lead a team without dominating it, and so on, for the long-term benefits that are likely to accrue.

## **Learning from Models**

In observing models, whether informally or

formally, learners have the opportunity to “take on the other,” try out new roles and behaviors, and apprentice into new ways of acting and thinking. But what will they choose to take on? Social cognitive theory suggests that we are more likely to take on behaviors that we see as meeting a need we might have, or the behaviors of those we see as similar to us or whom we respect (Bandura, 1986). This has clear implications for us as teachers. First, if we recognize that a primary need for learners is to feel accomplished and in control, then our modeling of how we control, manage, and direct our learning and thinking is likely to have appeal. Second, in establishing a learning community in which we model a respect for and interest in our students, we lay the context for them to see us as models they wish to imitate. Third, we have to look for what gets recognized and rewarded in our schools, classrooms, and organizations. Students are most likely to take on the behaviors that lead to these rewards.

As we worked our way through different types of modeling in this chapter, our progression has been from the informal, ongoing, and embedded

to the increasingly explicit, focused, and directed. All these types of modeling have their place in the classroom. However, as a force shaping the culture of a classroom, school, or organization, it is the informal modeling that has the most power. It is this kind of model that tells students who we really are and what we really value. As the Sizars said, “The students are watching.” They see us in our glory and our ignobility. However, rather than seeking to hide our weaknesses, struggles, and shortcomings—which students will inevitably see and notice anyway—we can open ourselves up authentically to our students and show them what it means to be an ongoing learner.

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## **Modeling for the Development of Thinking, Learning, and Independence**

- Allow yourself to be authentic. Bringing ourselves to our teaching means sharing what we do well as well as where we struggle. Look for opportunities to share your struggles as a thinker and learner with your students.
- Clarify your values. If what you have to offer your students is yourself, what do you want them to take away from their time with you? This isn't about being perfect, but it is about imagining your best self and then constantly striving to put that best self forward.
- Identify your thinking role models. Whom do you know who thinks through problems, reflects on learning, or analyzes situations in a way that you admire? Who is a good model of thinking and ongoing learning in your discipline? Who thinks about their teaching in a way that inspires you? This could be a single person, or, more likely, you will identify partial role models. Reflecting on the actions of these models, make a list of traits, attitudes, thinking

moves, and behaviors that you would most like to take on and incorporate in your behavior.

- Ask your students. Discuss with your class the difference between knowing a lot and being a good thinker. Then ask students to identify someone in their lives who they think is a good thinker. As a class, identify some of the traits of a good thinker.
- Observe and analyze. Using a video or pairing with a trusted colleague, observe a lesson and look for the apprenticeship subtext. What dispositions was the teacher displaying that his or her students might be picking up on? When, where, and how did the teacher make his or her thinking visible to students? Were there moments when you had a glimpse of the teacher as a thinker and learner? What were these?
- Share curiosity moments. Curiosity is a highly valued disposition as a driver of new learning. Drawing on the power of our mirror neurons to develop empathetic

responses in others, create opportunities for you and your students to share curiosity moments. A curiosity moment is a time when you experience, read, see, or hear about something that prompts questions or wondering in you that stays with you beyond the moment. It keeps you thinking, in other words. Share your own curiosity moments with your students regularly. Have your students reflect on their term break and identify their own curiosity moments.

- Backwards-design a process. Think of a process that you want your students to get better at doing independently. Reflect on how you go about the process and identify the key thinking moves in which you engage. Model and name these steps explicitly for your students.
- Practice a think-aloud with something difficult. A key part of being an effective learner is knowing what to do when you don't know what to do. Next time you engage in something difficult, model your

thinking by doing a think-aloud for your students. This might be when reading a challenging text, trying to synthesize a big topic, planning a project, or engaging in any other activity where you don't already have a clear process in place.

- Plan for the gradual release of responsibility. Identify a process with which you want your students to become independent. Identify those moments when you will model that process, give opportunities for guided practice, provide opportunities for more independent group work, and expect independence.
- Give students practice in noticing. Use the fishbowl technique or the steps of interactive modeling to help students learn to focus on the behaviors you want them to take on.
- Learn to apologize. It takes courage and practice to learn to apologize with grace. Start by identifying an instance from your past in which you know your behavior in

class was not what you wanted your students to see of you. The instance could be long past or recent. Now write an apology in which you (1) identify the incident and what was wrong or mistaken about it, (2) share your reflection on your own behavior and why it fell short of your personal standards, and (3) identify how you wish you had responded at the time. Keep up the exercise of writing out your apology until you feel comfortable speaking an apology out loud to your students.

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