# Real-World Problems:
## Engaging Young Learners in Critical Thinking

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Critical thinking is a process that can be taught. It involves "evaluating the accuracy, credibility, and worth of information and lines of reasoning. Critical thinking is reflective, logical, evidence-based, and has a purposeful quality to it—that is, the learner thinks critically in order to achieve a particular goal."[1] The highest levels of Bloom's Taxonomy require critical thinking; it takes time to develop high level thinking as a natural and deliberate behavior. The critical thinking skills necessary for decision-making are at the core of a healthy democracy and a civil and just world.

We have found that young learners will engage in critical thinking and purposeful decision-making when they feel affectively involved or connected to a problem or decision point; cognitively challenged yet capable of working on the problem or decision; and operatively, or behaviorally, prepared and supported with thinking strategies or tools that will help them to organize their thinking.[2]

Myriad programs tout strategies for developing students' thinking skills. With many known by their acronyms, teachers face an alphabet soup of ideas and strategies. If students are to transfer and apply higher-order thinking and critical thinking skills to real life situations, then these skills should be taught within the context of powerful social studies lessons and units. In this article we present three frequently used teaching strategies integrated into a unit about families and neighborhoods, which authentically enhances students' skills in thinking, making decisions, and resolving problems. These three strategies are

> HOTS- Higher Order Thinking Skills
> PMI - Plus/Minus/Interesting
> HATS - Six Thinking Hats

### The Storypath Narrative
Storypath[3] draws students into a narrative that uses a sequence of learning experiences (episodes) to immerse the student in the subject matter. Each student becomes a character in the narrative, learning through role-plays and within the story framework. Critical thinking skills develop naturally in context as students solve problems through the events in each episode. In the Storypath episodes described here, young students' imagination and thinking coalesce when they create a neighborhood and the families who live there and then are confronted with problems to be solved. These characters tackle everyday community problems, thereby opening doors for substantial conversations that build on shared understandings as students construct and then rehearse grown-up roles. In the episodes described here, students consider the issues of selecting street names, controlling traffic, and addressing a litter problem.

Building upon the Storypath narrative, we employ three Critical Thinking Strategies within a unit of study on neighborhoods. The strategies are introduced one at a time to involve members of the whole community (i.e., the students) in recognizing a problem, considering possible solutions, and arriving at one best option for action. The **Pullout** that follows this article provides handouts for students to use as they work through problems facing their neighborhood, using different strategies to solve the various problems.

### Higher-Order Thinking Skills
The Higher-Order Thinking Skills strategy (HOTS), developed by professor of educational leadership Stanley Pogrow at San Francisco State University, is a program specifically for "educationally disadvantaged" students. It builds on Socratic dialogue, which emphasizes creative and logical conversation between teacher and students.[4] Like others[5] who have observed classrooms in areas of poverty, Pogrow argues that most teachers ask simple questions of educationally disadvantaged students and are content with one-word responses. HOTS teachers are trained to ask questions that require stu-

dents to explain and elaborate their answers at length."[6] His strategy strives to create a conversational environment in which students willingly engage in complex thinking through computer activities, dramatic techniques, and what he describes as "outrageous lessons." The components of a dramatized content lesson plan include props; characters; disguises (both costume and voice); a setting that incorporates as many media and senses as appropriate; a storyline or scenario (with a dilemma, fantasy, and humor); the eliciting of emotional reactions (such as empathy and surprise); transition to the students' learning activity; content materials; and debriefing of students on the content objective of the lesson.

In one of our Storypath episodes, we incorporate these HOTS strategies in a dramatic role-play of a town meeting, where community members (the mayor, a botanist, an historian, students, parents, local business people and others) come together to choose street names for their neighborhood. As is the case with all Storypath episodes, we ground the scenario in the reality of a time and place, making the development of learning and thinking skills realistic, transferable, and personally meaningful. HOTS integrates naturally into the Storypath unit, where there are characters and a setting (families in a neighborhood); a storyline (problems in the neighborhood); and props or artifacts, which the students create to build ownership of and connectedness to the storyline narrative. In both Storypath and HOTS, the drama process "affords the chance for first-hand interactive learning experience. In creating a world within a drama and inviting children to invest directly and actively something of themselves in it, the teacher creates the opportunity for understanding to be perceived which is directly transferable to the real world."[7] Through extended dramatic role-plays in a Storypath unit, critical thinking is practiced within a real world context, not in an arbitrary or phony manner.

## Plus/Minus/Interesting

The Plus/Minus/Interesting strategy (PMI) is a decision making tool that helps students organize data in order to make an informed decision.[8] This strategy, developed by author Edward de Bono (who has held faculty positions at Harvard and Oxford), enables young students to make decisions after thoroughly analyzing the potential consequences of their actions. When confronted with a decision they need to make, students consider the Pluses (positive points); Minuses (negative points); and Interesting but maybe unpredictable possibilities of various options. In a full class discussion, a chart can be used to record students' ideas, which often reveals that there are multiple perspectives to consider when trying to resolve a problem.

In our Storypath neighborhood scenario, students are confronted with the issue of traffic safety. The PMI strategy is effective in helping students decide what the best solutions are to the traffic problem, as small groups brainstorm different solutions and consider the pluses and minuses of each. For example, a group in one class suggested that helicopters hover overhead to watch for traffic infractions. Students considered the benefit of helicopters overhead to alert drivers that they were being watched (plus factor); the noise of the helicopter flying around the neighborhood (minus factor); and what it might cost to have such a traffic safety plan (interesting or neutral factor). As various solutions were suggested, students weighed the pluses, minuses, and interesting aspects of each and ultimately settled on local government adding traffic safety and street crossing signs to their neighborhood. By working through such a scenario with the application of the PMI thinking process, students felt affectively connected to the problem, cognitively able to discover solutions, and operatively supported in their work.

## Six Thinking Hats Strategy

The Six Thinking Hats strategy (HATS), also developed by de Bono, uses children's connections to the concrete experience of wearing brightly colored hats to engage in metacognition (thinking about thinking).[9] The metaphor of hats, or, with young ones, the actual experience of wearing colored hats, entices learners to participate in different types of thinking about problems or issues. Six hats are described and associated with thinking processes: Blue Hat—Process, White Hat—Facts, Green Hat—Creativity, Yellow Hat—Benefits, Black Hat—Cautions, and Red Hat—Feelings.

In this Storypath episode, students explore the problem of litter scattered in the neighborhood through each mode of "hat" thinking. For example, white hat thinking would explore the facts: "What do we know? When is the litter occurring? Where is the litter?" Red hat thinking would explore how students feel about the neighborhood problem: "How does it feel to see litter everywhere in the neighborhood?" "Would people want to visit

such a messy neighborhood?" Green hat thinking would be framed to consider students' ideas for ensuring a litter-free neighborhood: "What can we do about the litter problem?" Children often suggest "no litter" signs and garbage bins. Black hats help them consider the viability of their solutions as we ask about the location of signs and the placement of bins, making connections between their own neighborhoods and their "created" neighborhood. When students make decisions and construct signs about litter and place garbage bins in their created community, an important critical thinking lesson becomes concrete, and the actions visibly affirm the students' capability to solve problems that they might experience.

### A Meaningful Role

In all of these Storypath episodes, the students are the main characters. Through the events of the story, the learners identify themselves as a socially meaningful group, performing a socially meaningful role—essential components of learning and real-life critical thinking. The meeting format, as a democratic process, affirms that in order to solve problems, people must come together, consider evidence, and deliberate. Everyone has a chance to contribute thoughtfully to the discussion. As the challenges in the narrative are open-ended, there is no one right answer, and imagination and critical thinking are valued.

In this unit, students practice listening to one another and working collectively to apply strategies, to make decisions, and to resolve problems. The experience creates positive messages about students' capabilities as citizens: that their ideas are seriously considered and their voices matter. These are important attitudes for citizens to acquire if they are to successfully contribute in a democracy.
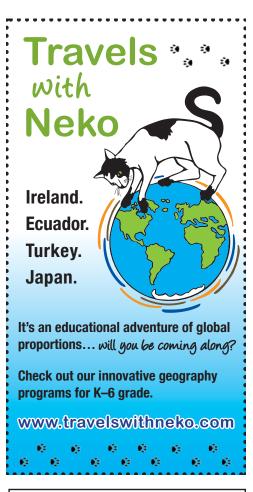
No matter what thinking strategies teachers employ, engaging students in critical thinking activities requires effort and perseverance and is best achieved through a sustained unit of study; one that provides opportunities for simulations and problem solving. In sustained units such as this Storypath neighborhood unit, we observe students continually surprising themselves with their new understandings, thinking skill development, and problem resolution. We see them transfer these skills into classroom and playground contexts, and such transferability is essential for the 21st Century. ⊠

### Notes

1. Jeanne Ellis Ormrod, *Human Learning* , 6th ed. (Boston, MA: Pearson, 2012), 421.
2. Fair Go Team (FGT), *School Is for Me: Pathways to Student Engagement* (Sydney, Australia: NSW Department of Education and Training, 2007).
3. See Margit E. McGuire and Bronwyn Cole, "Using Narrative to Enhance Learning through Storypath," in *Making a Difference: Revitalizing Elementary Social Studies*, M. E. McGuire and B. Cole, eds. (Silver Spring, MD: National Council for the Social Studies, 2010): 25–37.
4. Stanley Pogrow, "HOTS: Helping Low Achievers in Grades 4–8," *HOTS Higher-order Thinking Skills* (November 1996), www.hots.org/article_helping.html.
5. Martin Haberman, "The Pedagogy of Poverty Versus Good Teaching," *Phi Delta Kappan* 73, no. 4 (1991): 290–294; Bruce Torff, "Teacher Beliefs Shape Learning for All Students," *Phi Delta Kappan* 93, no. 3 (2011), 21–23.
6. Stanley Pogrow, *Teaching Content Outrageously* (San Francisco, CA: Jossey-Bass, 2009), 70–71.
7. Pamela Bowell and Brian S. Heap, *Planning Process Drama* (London: David Fulton, 2001), 2; "Plus, Minus, Interesting," Mind Tools, www.mindtools.com/pages/article/newTED_05.htm.
8. Edward de Bono, *Serious Creativity* (New York: Harper Business, 1992).
9. ____, "Six Thinking Hats: Increase Collaboration Skills," www.debonoforschools.com/asp/six_hats.asp.

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