Unit 1
Different Brains

Major principles

- All brains are different.
- One teaching style, one approach, and one design will not succeed with all learners.
- Brain function relies on interconnected systems rather than on separate modules or hemispheres.
- How we perceive the world and solve problems is determined by our profile of cognitive strengths and weaknesses, our experiences, our emotional needs, and the sociocultural context.
- What teachers think is easy for learners may not be.
- Young brains are more plastic but less efficient.

The major principles explored in Unit 1 suggest that schools and classrooms need to be as flexible as possible in working with the array of different perspectives and cognitive strengths students bring with them. For learners with various profiles to be successful, teachers must find flexible ways of presenting lessons or of being open to flexible ways in which students might demonstrate their understanding. Providing this flexibility allows students different entry points to the lesson. For example, Nico's approach to the problem of recognizing and producing tonal meaning in conversation was to treat the problem as pseudogrammatical, while Brooke's approach was heavily emotional. It is the same problem, but with different entry strategies—depending on the cognitive strengths of the two boys.

As you go through the suggested exercises below, keep the major principles of the unit in mind.

Assignment 1: Write about and discuss the various aspects of your classes and of your school that allow for flexibility.

Recall the story of Nico and Brooke (Unit 1, Section 4)—how their teachers needed to adapt to the boys rather than expect the boys to adapt to a preset curriculum. Although these teachers were confronted with an extreme demand for differentiated instruction, their experience suggests that teachers might profit from assuming that

everyone's brain is a bit different.

Look at various aspects of your classes and of your school (for example, grading, homework, graduation requirements, daily schedule, assessment, etc.). Which ones allow for flexibility? Which ones do not? How might the latter be made more flexible? Can you think of any students who might learn more as a result of this flexibility?

Assignment 2: Analyze a case study.

Recall the story of Brooke and the expectation that, given his neuropsychological profile, he would find it easy to reproduce tonal sounds using nonsense syllables ("na na") (Unit 1, Section 6).

Case study: *Stan is in Ms. J's English class and writes good essays about issues like teen drug use and democracy. He has an unusual knack for using good personal examples and organizing persuasive arguments. Many of his classmates struggle with organization, so Ms. J came up with the idea of simplifying the task by stripping it down to what she saw as its basics. She disassembled good paragraphs (taken from professional writers), listed the sentences out of order, and asked the students to reassemble the paragraphs. She assumed Stan would be the best in the class at this exercise and was surprised to find he was the worst.*

Write down the answers to the following questions:

1. What might explain Stan's poor performance?
2. In thinking about this case, what is required of a student to be able to do Ms. J's exercise?
3. How might different people approach this task?

Assignment 3: Select a piece of work from two different students doing the same assignment—a homework assignment, or a test, or a project. One piece should be from a student who did poorly (received a bad grade but appeared to try), and one should be from a student who did well on the same assignment.

Answer the following questions:

1. Looking at this work as a source of data, what do you think it reveals about how the students approached the problem?
2. What knowledge or understanding did each student possess?
3. What strategies were used?
4. Where did one student seem to move away from your expectations, and are there any clues as to why the student went in this direction?
5. Did this student seem to share your understanding of the problem or assignment? Why or why not? As you consider this problem, think about not just

the individual cognitive profiles students bring to problems, but also the plasticity and relative inefficiency of a child's brain.

6. Finally, can you imagine a way that the less successful approach to the assignment might lead to an interesting solution that you might not have considered? If you struggle with this exercise, try examining the selected students' work with a colleague or two.

Assignment 4: Interview students to gain additional insights.

As an additional layer to the previous exercise, try interviewing both students about their work to attempt to gain more insight into each one's thought process, knowledge, perception of the problem, and strategies for solving it.

Answer the following questions:

1. Were your analyses of the work reinforced by how the students talked about it?
2. Did you find anything surprising in the students' answers that might help you to see where each was coming from?

Suggested readings between Unit 1 and Unit 2:

Possible review:

Immordino-Yang, M.H. "A Tale of Two Cases: Lessons for Education from the Study of Two Boys Living with Half Their Brains." *Mind, Brain, and Education* Vol. 1, Issue 2 (June, 2007): 66–83.

Possible preview:

Immordino-Yang, M.H., and A. Damasio. "We Feel, Therefore We Learn: The Relevance of Affective and Social Neuroscience to Education." *Mind, Brain, and Education* Vol. 1, Issue 1 (March, 2007): 3–10.

Immordino-Yang, M.H., and F. Matthias. "Building Smart Students: A Neuroscience Perspective on the Role of Emotion and Skilled Intuition in Learning." In D. A. Sousa (Ed.), *The Future of Educational Neuroscience: Where We Are Now, and Where We're Going Next*. Bloomington: Solution Tree Press. 2010.