Introduction

Summary

- Brain imaging technologies, such as EEG, MEG, PET, fMRI, and fMRS, have enhanced our ability to see how the brain functions when performing specific tasks. Some of the findings from studies using these instruments have implications for educational practice.
- This book discusses brain research that relates to teaching and learning and suggests ways that the research can be translated into what educators do in schools and classrooms.
- The book should be useful to classroom teachers, staff developers, principals, college instructors, and parents as they work to help children learn.
- Action research is a valuable method for determining the effectiveness of new strategies and of those already in use, and for providing teachers with feedback for self-evaluation. Action research can be the work of just one teacher, but its value grows when it is the consistent effort of a teacher team, department, school staff, or an entire district.
Discussion Questions

1. What major advancements in the study of the human brain have led to the explosion of new information on how it works?
2. Why should teachers care about brain research?
3. What teaching strategies do you think would lend themselves well to action research in your school or classroom?

Activities

> Video/DVD: Introduction
Time: 4-5 minutes

Show the first section of the video/DVD, “Introduction.”

> What Do You Already Know?
Time: 20 minutes

Materials: How the Brain Learns, Third Edition

Ask the participants to individually complete the 10 true-false questions on page 11. Start a short discussion on why teachers answered the way they did, but avoid agreeing on a correct answer. The answers to these questions are scattered throughout the book at the appropriate place in the text.

> How Brain Compatible Is My Teaching/ School/District?
Time: 20 minutes

Materials: How the Brain Learns, Third Edition

Ask the participants to individually complete the instrument on page 12 by circling their responses. Then ask them to connect the circles from top to bottom to get a visual profile. Organize the participants in pairs and have them discuss their results with their partners.
Journal Writing: What action should I take, if any, to address those items with scores of 1 and 2? What can I do to maintain those items with scores of 4 and 5?

>Understanding Action Research

Time: 35 minutes, with reading

Materials: Chart paper, markers, masking tape, How the Brain Learns, Third Edition

Ask the participants to read pages 9 to 11 before starting this activity. Organize them in groups of four to five. The group size will depend on the number of participants. Ask them to review at their table the six steps in the Action Research Cycle (Figure I.1). Their task is to select a teaching strategy that they could use in an action research project in their classroom or school.

On the chart paper they draw six large boxes similar to Figure I.1 and fill in the appropriate information. They describe the topic, the type of data they would collect, how they would analyze the data, and what steps would they take as a result of that analysis. When finished, ask one member from each small group to report the results of their work to the entire group.

Journal Writing: What would be an appropriate topic for me to use in an action research project in my classroom or school? How would I conduct it?

Chapter 1: Basic Brain Facts

Summary

- Important exterior regions of the brain include the frontal, temporal, occipital, and parietal lobes, the motor cortex, and the somatosensory cortex.
- Other structures include the brainstem, limbic system, cerebrum, cerebellum, and brain cells.
- Oxygen and glucose are needed for brain cells to do their work.