

# Brain Friendly Teaching and Learning

*Brain research is changing the way we view teaching and learning. Education students will be familiar with the information below, but practicing teachers should make sure they are teaching to maximize learning, based on what we now know about how the brain takes in and stores information.*

First, some basic principles about how students learn. (There is some overlap here with previous articles I've written).

## 1. A Safe Environment

Students can't learn if they don't feel safe. That doesn't mean just physically safe; they need to feel safe about answering questions, volunteering information and taking risks. The teacher's job is to create a classroom climate where this can happen.

## 2. Social Interactions

Working in groups, where students can talk about what they're learning, helps them to learn it better, especially if they can explain what they've learned to others.

## 3. Regular Procedures

Students, especially young ones, should always know exactly what to do, and what to do next. For example, they need to know that bathroom break won't be for fifteen minutes ... the less they need to worry about what's coming up, the more easily they can focus on learning. As a teacher, establish classroom routines and stick to them; students will be less anxious, and more involved in the learning.

## 4. Emotions

Our brains store information more effectively when the information is linked to an emotion. For example, can you remember a really good day (or a bad one) that you had last month? How about what you did last Wednesday?

## 5. Brain Oxygen

Physical activity increases the flow of blood and oxygen to the brain. Regular breaks with a little physical activity can help students learn more effectively, even in a grade 12 classroom.

## 6. Choice

When a student is offered a choice about how to learn something, not only will he be using the appropriate method for his style of learning, but he will also be problem-solving, and will become more self-aware about how he learns best .

## 7. Feedback

Students need to know how they are doing. Ongoing formative assessment by the teacher needs to be reported to the students individually. This lets the student know that he's 'getting it', and provides motivation for more learning.

*When a teacher conveys new information to a student, the aim is for that information to be stored in the student's long-term memory, and for it to be easily retrieved. Let's look at examples of how this might be done. The goal is to give the new information meaning ... to help students connect, and relate to it.*

### **Get the students involved right away**

Capture their interest. Involve them. Start with an example that they can all relate to, one that holds high interest for them.

### **Let them reflect on the new information**

Help them relate the new information to prior knowledge. Do this with discussions, pointed questions, or journal writing.

### **Encourage them to internalize the information *correctly***

You want to make sure that they really understand the new concepts, before it's stored in their long-term memories. Ask them to describe what they've learned in their own words. Have discussions. Let them write summaries, make posters, or prepare presentations for the class. The teacher needs to check for proper understanding.

### **Reinforce the learning**

During the discussions or presentations, reinforce correct understanding with positive feedback. Provide correction if the learning has not been complete or accurate. Kids can also reinforce their own learning by drawing pictures.

### **Practice the learning**

At this point the teacher may have to use differentiated instruction; some students may need to have the material retaught to them (in small groups), while others can move on to an assignment that explores the concepts in more depth.

In the latter case, assignments can take a variety of forms; they can be written, oral or visual. Group work is also of benefit, so students can discuss what they've learned. Use field trips, songs, posters, poems ... anything that will help students store information in a variety of ways (using ideas from multiple intelligence theory). Incorporate questions that require higher levels of thinking (Piaget).

### **Review the learning**

This helps students to recall what they've learned. Use writing, games, mind maps, drawing, hands-on activities or role playing, depending on the nature of the information.

At higher levels, this often includes practice tests. Allow students to make their own tests and mark them themselves, with rubrics the class has created together.

### **Assess the learning**

At every point in the process above, the teacher is using formative assessment to judge whether learning is taking place for all students. But eventually a summative assessment tool will be necessary, to provide evidence of learning. This could be a pencil-and-paper test, or an observation, or a discussion with individual students (depending on the level).

Of course, you are familiar with the principle of 'Backwards Design', so you know that the summative assessment tool was the very first thing you (the teacher) created, before any teaching took place. You know that the tool will provide evidence that all of the required learning outcomes have been mastered.