

## Brain-based Learning

### Emotional Intelligence and Brain-Based Learning

Behavioural scientists have come to understand that human behaviour is guided by more abilities than can be measured by a standard IQ test. Most people would agree that "when it comes to shaping out decisions and our actions, feeling counts every bit as much - and often more - than thought" (Goleman, 1997, p. 4). In an attempt to incorporate the importance of emotions within the concept of human intelligence, acknowledging that "for better or worse, intelligence can come to nothing when the emotions hold sway" (*ibid.*), scientists began to recognize that "the emotional brain is as involved in reasoning as is the thinking brain" (*ibid.*, p. 28). The term "emotional intelligence" was coined to describe these abilities that guide so much of human behaviour, including "being able to motivate oneself and persist in the face of frustrations; to control impulse and delay gratification; to regulate one's moods and keep distress from swamping the ability to think; to empathize and to hope" (*ibid.*, p. 34). As the study of emotional intelligence continued, it became clear that

Emotional life is a domain that, as surely as math or reading, can be handled with greater or lesser skill, and requires its unique set of competencies. And how adept a person is at those is crucial to understanding why one person thrives in life while another, of equal intellect, dead-ends; emotional aptitude is a *meta-ability*, determining how well we can use whatever other skills we have, including raw intellect (*ibid.*, p. 36).

Major descriptors of E.I. include:

- Self-awareness - knowing your feelings and using them to make good decisions;
- Self-control - being able to manage distressing moods well and control impulses;
- Optimism - being hopeful and motivated when you have setbacks, having goals and working toward them;
- Empathy - knowing what people around you are feeling (being able to read body language, being able to put oneself in another's shoes);
- Social skills - getting along with others, managing emotions in relationships.<sup>1</sup>

Whether teaching children or adults, instructors who are concerned with emotional intelligence, and in particular, developing those abilities described by this term, bear a serious responsibility because "there is perhaps no subject where the quality of the teacher matters so much, since how a teacher handles her class is itself a model, a de facto lesson in emotional competence" (*ibid.*, 279). While most of the studies of how emotional literacy impacts upon students focuses on elementary school age children, there are certainly applicable lessons for interacting with adult students. To name just a few abilities, children who learn how to master and use their own emotional intelligence:

- Display an "increased ability to analyze and understand relationships";

- Are "better at resolving conflicts and negotiating disagreements";
- Are "better at solving problems in relationships";
- Are "more democratic in dealing with others";
- Are "better at listening to others";
- Are "better at handling stress" (*ibid*, p. 284).

All these qualities are highly desirable in both children and adults, and there is an obvious application within the Royal Roads University distance-learning environment. In addition, since Royal Roads University strives to provide students with practical, applicable learning that can translate to their lives off-campus, skills acquired during the process of gaining emotional literacy will truly give credence to the university's motto: "Living our Learning".

### **The Brain is a Pattern-Maker**

- In its search for meaning, the brain is constantly looking for patterns
- The brain puts nouns and verbs first
- People don't consciously use their brains, brains free-associate
- The more a particular sequence of neurons is used, the stronger it becomes. It is not, "practice makes perfect", but "practice makes permanent."

### **Brains Disengage from Time to Time**

- The brain frequently shifts its focus between external events and internal memories and interests.
- Provide elements of novelty and surprise to keep learners engaged
- Create a climate of 'relaxed alertness', that is, learners should be challenged and supported. Keep the learners living on the edge of their competence, but provide a safety net
- The mind can pay conscious attention to only one train of thought at a time (the Cocktail Party effect)
- Learning takes place when the learner makes connections in his/her brain
- Give students the opportunity to construct their learning.
- Instructors should activate prior knowledge before teaching what students should learn
- A useful starting point is, "What is one thing you know about \_\_\_ and one thing you would like to know?"
- Check for understanding of definitions and objectives before asking students to apply, analyze or synthesize knowledge
- Ask students to summarize previous classes
- Ask warm-up questions, give quizzes, and devise game-like ways to check for understanding of previous work
- Build the capacity of students to learn rather than fill them with content

- Avoid 'covering' material and instead use probing questions to teach them to think.

## Memory

Short-term memory usually lasts only seconds (left hemisphere)

- Cognitive rehearsal maintains information in the short-term memory and transfers it into long-term memory
- By (mental) age fifteen years people generally retain seven units of information, plus or minus two
- 'Chunk' information in meaningful units of seven (maximum)
- Relate material to the real world
- Allow time for learners to process/repeat/re-use the information
- The brain requires 'cognitive rehearsal'. It must process information in order to put it into long-term memory
- The more we practice the stronger the connections. Neurons that fire together wire together.

The right hemisphere - the more visual - has almost unlimited retention possibilities

- Humans can easily retain thousands of images
- Help students create visual images of material to be learned
- The more unusual the visual image, the more likely learners will retain it
- In research by Standing (1973), subjects were shown over 10,000 pictures. They were later shown some of these pictures mixed in with new ones. Subjects were able to identify the ones they had seen before with 90% accuracy.

*"The true art of memory is the art of attention." (Samuel Johnson)*

## Connecting Lesson Basics to Brain-based Teaching and Learning

Lesson Basics (the bridge, learner-centred objectives (or outcomes), a pre-assessment, participatory lesson and post-assessment) have been the foundational elements of Instructional Skills Workshops since their inception. Their value in enhancing student learning has been consistently demonstrated since the early 1970's. Recent research on brain-based learning sheds some light on this success story. Some of the elements of brain-based learning are indicated on the right side of the document below. Participants in our Instructional Skills Workshops reflect on the connections between lesson basics and brain-based learning. In so doing, they use a brain-based technique to remember aspects of both.

<b>Lesson Basics</b>	<b>Brain-based Teaching/Learning</b>
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Bridge

- Provide a cognitive map

- Create a climate of relaxed-alertness
  - Encourage participants to interact
- Learning Outcomes
- Activate prior knowledge before presenting
  - Vary teaching techniques
  - Allow for cognitive rehearsal - practice and process time
- Pre-Assessment
- Give participants opportunity to teach
  - Ensure that learning has successfully taken place
  - Participants experience learning
- Participatory Learning
- Learning is linked to emotion or high-contrast activity
  - Ensure 'lower order' learning has taken place before introducing 'higher-order' learning
  - Allow participants to move around to enhance their learning
  - Mnemonic techniques are used
  - Information is 'chunked' to facilitate retention of material
- Post-Learning Check
- Summaries of material are requested or provided
  - Indicate relevance of information to participants' lives

It is the intentional use of cognitive strategies or brain-based learning techniques that can enhance students' learning and retention of new material.

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<sup>i</sup> Information adapted from:

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