

The Adolescent Brain

Understanding our students' adolescent brains will benefit teaching and learning in our classrooms.

During the 20th Century, many varying teenage behaviours were attributed to a number of factors

- resentful of authority; particularly parents and teachers
- a desire to be independent
- rampant hormones

leading to rash decision making and seemingly anti-social attitudes to adults

21st Century brain research has discovered the real reasons behind teenage behaviours

- the teenage brain is still developing; it is incomplete and as such they are not "little adults"
- the neural circuitry is not fully complete and functional until their early 20's
- emotional stability and sound decision making are some of the last pieces of circuitry enabled

The adolescent brain is a turbulent place, with inconsistent behaviours also fuelled by developing sex hormones

- the limbic system, deep inside the brain generates emotions; it does not control the emotions created and many go unchecked

The Prefrontal Cortex is the control centre of the brain

- it determines how long, how controlled and severe emotions are

In adolescent brains, it hasn't developed the capacity to be a controller, and as such

- generated emotions go unchecked
- the ability to make good decisions is not sophisticated
- adolescents struggle to cope with multiple thoughts and priorities
- this prevents them from being able to prioritise activities and thinking before they act

When teenagers take risks which may give them a thrill, their pleasure is

- primarily from the circuitry that links parts of the emotional chain
- not so much from dopamine, a brain chemical that causes arousal in adults

Novelty and new experiences intrigue teenagers much more than children or adults

Serotonin, the feel good brain chemical, is in lesser quantities in adolescents, thus causing impulsively and moodiness

As the sex hormones start to kick in, a part of the teenage brain called the amygdala swells, causing

- a rise in irritability and aggressive attitudes
- less considered decision making

One of the final developments in the brain is the coating of the nerves in a substance called myelin allowing

- faster and more effective movement of electrical impulses in the brain
- more consistent regulating of emotions
- better balanced decision making

"People who think they know everything are very irritating to those of us who do"

Ralph Waldo Emerson