

Neuroscience for Innovative Educators

Brain Education for Adults & Teachers to help foster agency, empathy and self-leadership in students.

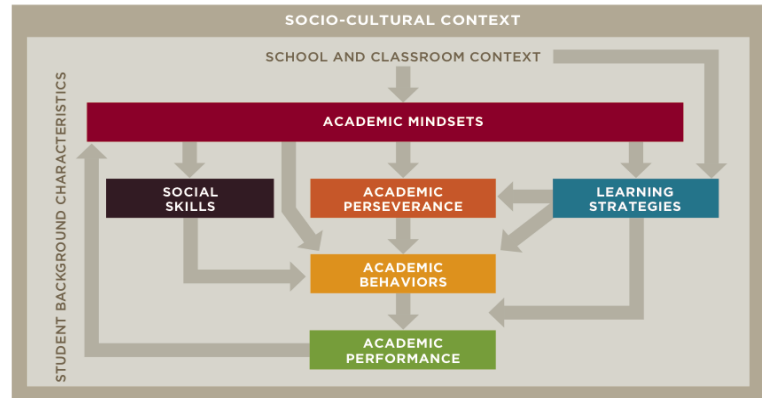
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IQ & test scores are not reliable predictors of future success

- Beliefs about intelligence and attributing academic success or failure to levels of effort are stronger predictors of school performance than actual measured ability (ie., test scores)¹
- Academic behaviors, more than tested achievement, predict course failure; positive academic mindsets encourage students to persist at schoolwork, which then appears as improved academic behaviors, leading to improved performance¹

FIGURE 2.1

A Hypothesized Model of How Five Noncognitive Factors Affect Academic Performance within a Classroom/School and Larger Socio-Cultural Context

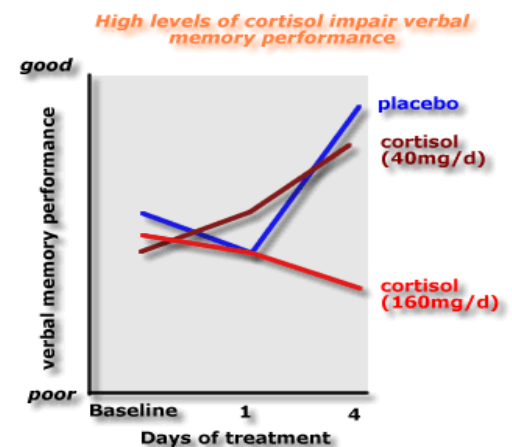


1 Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review. Chicago: University of Chicago Consortium on Chicago School Research.

Stress Impairs Performance & Social Behaviors

Stress can come from home environments combined with lack of self-regulation abilities that lead to high levels of cortisol, which impair verbal memory performance, and inhibit areas of the brain involved in communication, problem-solving, impulse control and empathy.

Stress is caused by an interpretation of external stimuli and is often perpetuated for long periods by 'uncontrolled use' of the imagination. This means that even if the stressor is no longer present (for example in the classroom, students may still have lingering adrenaline and cortisol that continues to flow through an 'accidental' continuation of stress-related thoughts.



Newcomer et al., (1999), Decreased Memory Performance in Healthy Humans Induced by Stress-Level Cortisol Treatment, JAMA Psychiatry (56), 6.

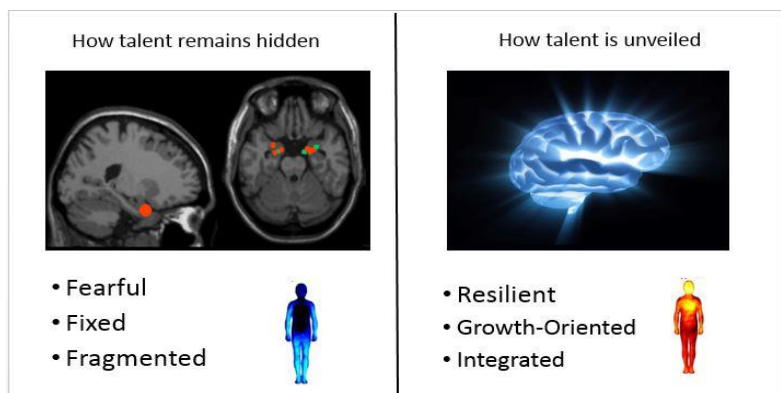
Resilience and Self-Leadership (which includes Self-Advocacy) can reduce stress and lead to positive mindsets and behaviors

What fosters resilience and self-leadership?

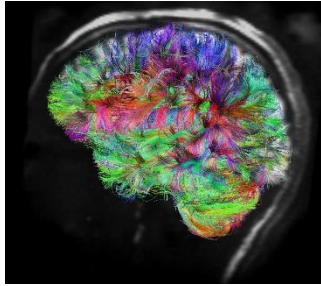
Understanding of brain plasticity and 'pathways' (including growth mindsets)

Integration of as many areas of the brain as possible ("up, down, all around")

Belief in our adequacy → belief in our ability to learn, and to be able to handle 'stuff' if it doesn't work out (importance of failure)



Pathways: needed for learning, but can also get us in trouble



Fear-based pathways can make any situation seem stressful

“a fearful mind sees a snake where only a rope lies”

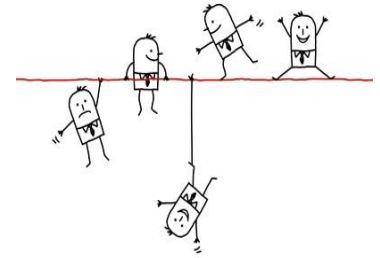
Integration: Aspects of using the right brain

Self-awareness and awareness of emotions in others, understanding and awareness of bodily sensations and emotions in ourselves; longer branches to make more connections with other parts of the brain.

- Source: Daniel Goleman, The Brain and Emotional Intelligence: New Insights

All of these features help us to recognize, then verbalize our feelings and needs. This is crucial to self-advocacy.

Belief in our adequacy



One way to do this: embrace failure.

Discuss importance of failure, struggle and discomfort on the journey to success and in building new pathways and connections in the brain.

Three Key Things to Know About Young Minds

1) Brain develops from back to front. This means: less access to long-term decision making, thinking of future consequences, controlling impulses, ability to communicate their feelings.

2) Self-Consciousness and Social Rewards Sensitivity are at their peak. Around 9 to 10 years old, the brain begins to develop a heightened sensitivity to others' perception of them. This is the beginning of 'self-consciousness'. Around the same age, social rewards receptors become highly sensitive.

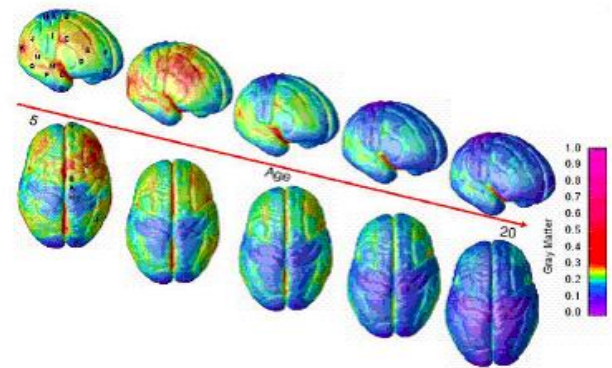
3) Effort = Lack of Innate Ability: Around 12 to 13 years old, children tend to begin believing that if something feels hard, it's because they don't have a natural talent for it and never will. They believe, therefore, that they should not even bother to try.

Sources: Gogtay et al., and Farrington et al., (2012)

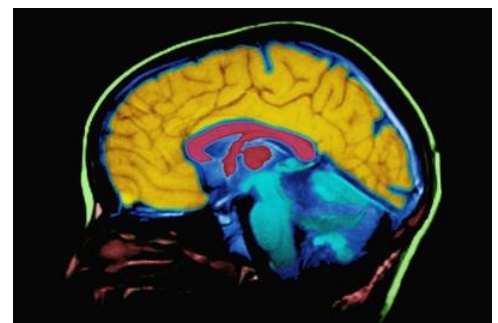
This means:

Students' awareness of their *own* feelings (rather than others' perceptions) can help them tune in inner rewards, rather than external approval (key to perseverance and to minimizing lure of peer pressure). Being able to 'tune in' to feelings also activates new areas of the brain.

Talking about the importance of failure can help them re-frame obstacles & effort



Gogtay, N., Giedd, J., Lusk, L., et al. Dynamic mapping of human cortical development during childhood through early adulthood, Proceedings of the National Academy of Sciences



Resilience & Self-Leadership can be taught by:

Teaching students about how the mind works, and integrating strategies and frameworks that highlight the following:

- The importance of bonding, attachment and oxytocin → CONNECTION
 - Activation of the right brain, and areas associated with self-awareness → AWARENESS
 - Deliberate creation of healthy pathways to help override self-defeating beliefs and habitual behaviors → RITUALS
 - Setting intentions and embracing proactive, rather than reactive measures → INTENTION
 - Re-training the mind to interpret events in ways that lead to feelings of empowerment, rather than fear. → NOTICING THE GOOD
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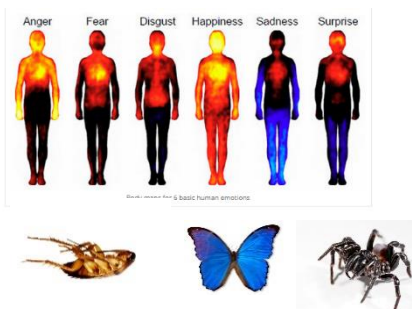
Examples of activities/ discussion ideas for C.A.R.I.N.G.™ Classrooms:

Connection



Alphabet backward exercise
Talks about vulnerable emotions

Awareness



Body sensations for emotions
Disgust exercise

Rituals



Crossing Arms exercise
Bags on other shoulder exercise

Intention & Integration



Feather Exercise
Personal Analogies
Talking about feelings

Noticing the Good



'Look for Blue' Exercise
Gratitude Journals