

How the Adolescent Brain Learns

A Guide to Maximizing
Secondary Student Achievement

HERE'S WHAT'S INSIDE:

Did You Know?

5 Little-Known Facts about
the Adolescent Brain

Dos and Don'ts

For Teaching Adolescents

FAQs

About Secondary Students

Presented by



5



Little-Known Facts about the Adolescent Brain

Did You Know?

1 Adolescents need 8-10 hours of sleep.

Teens are experiencing the second biggest growth spurt in their lives, after early childhood. They need 8 to 10 hours of sleep at night to fuel this development. Inadequate sleep can lead to cognitive, behavioral, and emotional issues, since the brain's prefrontal cortex (the area responsible for complex thinking, decision-making, and emotional regulation) is sensitive to sleep deprivation.

Unfortunately, teens don't get tired until about 11:00 a.m., and middle and high schools' average start time is 8:03 a.m., according to the Centers for Disease Control. No wonder most teens don't get enough sleep!



What Can Teachers Do?

Provide sleep diary worksheets, where students record sleep/wake times and how long they sleep. Students can then recognize correlations between sleep length and their ability to focus and perform well in school. Some educators advocate for later school start times. If teachers have the flexibility, as they do with remote learning, they might start classes later in the morning.

2 Adolescent brains lack impulse control.

The adolescent emotional brain is on overdrive without a fully-developed rational brain to pump the brakes. The result?

Risky, emotion-driven behavior.

The limbic system, which drives emotions, intensifies at puberty and remains hyperactive throughout adolescence. What's more, teens' brains release higher doses of dopamine, the pleasure chemical, when taking risks, than children's or adults' brains. At the same time, the



prefrontal cortex, which is responsible for self-control and risk management, is developing more slowly. So, when a teen chooses instant gratification or has an emotional outburst, it's likely because of a developmental mismatch in these two brain areas.

What Can Teachers Do?

Give students a boost in developing their prefrontal cortex. Foster self-control and time management through daily planners or offering extra points for submitting assignments early. Mindfulness exercises and social-emotional learning programs foster self-regulation and self-awareness. Brain-training technology like the Fast ForWord program builds working memory, focus, and attention skills.



Adolescence is the last time in life that the brain is so malleable.

3 Adolescent brains are incredibly adaptive.

Adolescence is the last time in life that the brain is so malleable. The adolescent brain makes extensive, new

neural connections, which heightens its ability to change. This brain plasticity offers an incredible learning opportunity for adolescents, because their brains let them learn more quickly than adults. Impressions on the adolescent brain tend to have stronger emotional associations, so the lessons learned could last longer. What's more, this period of hyperplasticity can last as long as 15 years, between the ages of 10 and 25.

What Can Teachers Do?

Leverage this impressionable time period by providing students with opportunities to develop lifelong social-emotional skills. These include delayed gratification, self-regulation, working memory, and goal-setting, which will help students succeed academically and make them college- and career-ready. For example, use goal trackers or have students write down their stress then rip it up. The Fast ForWord program also helps develop delayed gratification and persistence.

4 Adolescent brains are socially sensitive.

The adolescent brain feels outsized peer influence. Increased hormones, such as a dopamine spike when taking risks, intensifies the desire for social inclusion and acceptance. Such hypersensitivity to peer judgment is a double-edged sword. The downside: social influence escalates risk-seeking, and teens feel social embarrassment acutely. The upside: pairing learning with enjoyable social interactions allows the brain to transmit information from the amygdala (the area of the brain responsible for emotions) to the hippocampus (the area of the brain responsible for memory) more quickly. This brain activity strengthens long-term storage and working memory for information with social-emotional relevance.



5 ACEs have a huge impact.

Adolescents' heightened sensitivity to peer influence and emotion make them vulnerable to environmental factors that contribute to stress and a sense of inferiority. All humans benefit from moderate levels of stress (usually considered "stimulation").

But when stress is consistent and uncontrollable, it is toxic to the brain, which releases chemicals that heighten the "fight or flight" response and decrease higher-level thinking. Students who suffer from Adverse Childhood Experiences (ACEs) in the home, such as financial distress, marital discord, or parental depression, this as toxic stress. Continual failure in school has the same effect. These adolescents are at risk for negative health issues, compromised academic achievement, and behavioral problems.

What Can Teachers Do?

Facilitate group work, which funnels adolescents' peer-driven, thrill-seeking impulses toward positive, educational risk-taking, such as taking the lead in a group project. To account for adolescents' sensitivity to negative peer judgment, create groups based on students' strengths and weaknesses. Because adolescent brains are overly responsive to peer judgment, a teacher's praise may have a social cost. So, use socially safe rewards, such as a written note of appreciation rather than a comment made in front of the class.

What Can Teachers Do?

Implement social-emotional learning (SEL) approaches, such as group activities, meditation, or exercise breaks. Supplemental technological educational programs that increase academic success and confidence have been shown to reduce the effects of toxic environmental stress in students in high-poverty school districts.

Do's & Don'ts

For Teaching Adolescents

Do...

- ✓ Have a growth mindset
- ✓ Set students up for success
- ✓ Meet students where they are
- ✓ Gamify learning
- ✓ Provide opportunities for agency and self-accountability
- ✓ Mitigate social pressure and embarrassment that can impede learning
- ✓ Accept students for who they are—and make sure they know it

Don't...

- ✗ Assume that any student is destined to underachieve
- ✗ Punish bad behavior without considering/addressing root causes
- ✗ Set expectations too high
- ✗ Expect students to behave contrary to their brain wiring
- ✗ Micromanage
- ✗ Force students to read aloud or respond orally to challenging questions in front of the class
- ✗ Try to change them or alter cultural perspectives and expectations

- ▶ Teens' brains are extremely malleable, so there's tremendous potential for learning.
- ▶ Students often act out because they feel "dumb" at school, occurring in addition to the traumatic impact of ACEs. When students start succeeding academically, their behavior issues should subside.
- ▶ The ideal ratio of success to challenge is 80:20. If a student consistently succeeds below 80%, the material is too difficult; if they often exceed 80%, the material is too easy.
- ▶ Adolescents' risk-seeking impulses can be productively leveraged towards positive risks that reach learning goals.
- ▶ Secondary students yearn for independence but are still developing the skills to be successfully autonomous.
- ▶ Adolescence is a period of tremendous social development in the brain, so they will thrive in a socially safe learning environment.
- ▶ Check yourself for implicit bias and critically examine your own expectations. Do your best to make sure every student knows you accept who they are—regardless of GPA, ethnicity, athleticism, gender, style of clothing or hair, or anything else!

FAQS

About Secondary Students

Q: How do I properly address my students' behavioral problems?

A: Teens respond more to positive reinforcement than to punishment. Rewards should be intentionally distributed: dopamine released during carefully timed and structured reinforcement increases the likelihood that a stimulus-response pattern will be retained permanently. But without addressing its root causes, such as ACEs and academic failure, bad behavior will likely continue. Learn more [here](#).

Q: How do I engage secondary students and inspire them to succeed?

A: In order to engage students, make learning relevant. Project-based learning can bring real-world applications to the classroom. Group-based or independent competitions will light a fire, as long as everyone feels they have an equal chance at succeeding. Also, remember that your students can't be what they can't see, so show them what success looks like. An interview, whether in person or via Zoom, with prominent alumni or a local success story can inspire your students to dream and achieve.

Q: How do I help my secondary students who struggle with school?

A: Secondary teachers are typically subject matter experts and not equipped to help students who struggle with the basics. The most efficient and far-reaching solution to help any struggling reader is technology-assisted training of the fundamentals. For example, Elements I is the brand-new component of Fast ForWord Literacy that builds core reading and cognitive skills. Learn more [here](#).

Q: How do I establish trust with my secondary students?

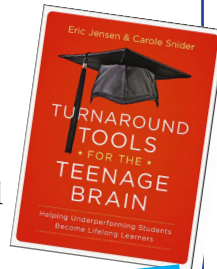
A: You get trust when you give trust. Build strong relationships by giving students ownership over their learning, by sharing your authentic self with them, and by truly listening and validating their perspectives. Consistently show and tell them you value and respect them, even it doesn't seem to make an impact. You never know which student will tell you that your words of encouragement changed their life.

RESOURCES

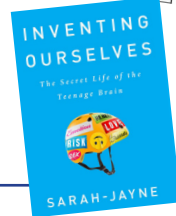


Books

Turnaround Tools for the Teenage Brain: Helping Underperforming Students Become Lifelong Learners (2013), by Eric Jensen and Carole Snider



Inventing Ourselves: The Secret Life of the Teenage Brain (2018), by Sarah-Jayne Blakemore



Articles

World Health Organization
“[Adolescent Health](#)”

Edutopia
“[Decoding the Teenage Brain \(in 3 Charts\)](#)”

Edsurge
“[Teenage Brains Are Elastic. That’s a Big Opportunity for Social-Emotional Learning.](#)”

Webinar

“Fostering Executive Function from Kindergarten through High School”
by Dr. Martha Burns

Watch it on-demand [here](#).

The Science of Learning Blog

Learn about the science of reading, learning, and brain-based classroom strategies.

Check it out [here](#).

NEW: Elements I for Grades 6-12

Available August 2020, Elements I is the innovative addition to the Fast ForWord Literacy program. Designed for the adolescent brain, it is a 2-in-1 reading and cognitive skills program.

Download the free brochure [here](#).

Organizations

Center for College & Career Readiness [Website](#)

American Association for Child and Adolescent Psychiatry [Website](#)