

# A Quick Look Into the Middle School Brain

The middle school student is a creature of paradox—at times childlike and then, quite suddenly, not. Emotions run high and heavy through the halls and classrooms, affecting behavior and learning. Middle school teachers may wonder how they can keep student attention focused more on their lessons and less on those other distractions. Offering lessons and activities that are actively engaging is certainly one way to gain and keep student attention in the classroom. However, even with the most exciting lesson, students can get distracted and lose focus. What causes this to happen? A quick look into a little brain research may provide some insight and offer ways to help reduce these distractions and increase student attention in the classroom.

Current research on the brain continues to change and evolve. It is also very complex. Simply put, the brain is made of three parts. The Institute of Heart-Math refers to these as the first, second, and third brain. Others have used the terms reflex brain, feeling brain, and thinking brain.

## How the Adolescent Brain Works

The first, or reflex brain, is the smallest part, residing just below the second brain and just above the spinal cord. This area of the brain controls basic bodily functions, including eye blinking, swallowing, digesting, heart beating, and eating. Additionally, the “fight vs. flight” reflex is exhibited in this part of the brain, which can be thought of as housing human instincts.

The second, or feeling brain, is slightly larger than the first and resides between the first and third brain. Emotions are controlled by this brain, which also provides the opportunity to learn from past experiences. During puberty, estrogen and testosterone hormones are pumped into the bloodstream, causing teenagers to reach high emotions quickly and often to seek out experiences that allow these passionate feelings to run amok.

The third, or thinking brain, is the largest and completely surrounds the other two parts. This area stores knowledge and memories. It also allows people to retrieve stored skills and information. Solving problems,



**“A strong emotion can overshadow other thoughts and often affects behavior as well.”**

creating goals, reflecting over behavior and actions, and making choices all happen in this part of the brain. It allows us to plan ahead and determine consequences.

New research through brain-imaging by Jay Giedd at the National Institute of Mental Health shows an additional stage in brain development during the adolescent years, ending in a fully mature brain by the age of 25. This last stage of development occurs within the prefrontal cortex (the “thinking” brain). This means that the adolescents in our classrooms may not have the brain maturity we assume they do, leaving them less likely to stay organized or show responsibility in planning, prioritizing, and evaluating the consequences of their actions.

Finally, another part of the brain that is still developing during adolescence is a

region that leads motivation. According to scientist James Bjork, teens may seek activities and behaviors that either lead to a high level of excitement or require very little effort. The immaturity of this region may be an underlying cause of the problems we face in motivating middle school students.

## How Teachers Can Help

Now, how does this information help middle school teachers better interact with students and provide a classroom climate conducive to learning? Take a moment to think about a time when someone made you angry. What happened? Most likely you could not concentrate on anything other than your anger, the person in question, or the event in question. All other thoughts are pushed aside as the second brain takes over and focuses solely on the feeling of anger; it is the same with other emotions. A strong emotion can overshadow other thoughts and often affects behavior as well.

The same can happen with the reflex brain. When a student is suffering from hunger or thirst, needs to go to the bathroom, or has other body issues, all thoughts focus on those needs. No learning is occurring when the student asks to use the restroom or wonders aloud when lunch will be served. When thoughts are centered around emotions and bodily needs, the brain “downshifts,” focusing energy in either the second or first brain. Meanwhile, the thinking brain stays in “idle mode” until these issues are resolved.

Middle school teachers can help students resolve these issues and shift back into the thinking brain by doing the following.

**Create a nonthreatening classroom environment** where students feel safe, are not ridiculed or teased in a hurtful manner, or subjected to sudden changes in attitude and reactions by the teacher.

**Provide healthy snacks**, such as crackers or fat-free popcorn, to students who are hungry. Teacher expectations with regards to these snacks must be clearly communicated to students.

**Create a procedure for students to use the**


*restroom or get a drink* in a way that does not distract the class. One strategy is to allow students to sign out one at a time to go to the restroom as needed *only* during individual or group work time, and not during direct instruction.

**Offer opportunities for students to share their feelings** when entering the class in an emotional state. A journal can be helpful, and so can a short one-on-one listening session while other students are completing an assignment at the start of class.

**Provide a place in the classroom where a student can go to calm down** for a few minutes when needed. Or consider allowing the student to go to the restroom or to talk to a counselor. Taking five minutes to regroup and move away from high emotions allows more time for learning.

**Teach students the concept of the three-part, or triune, brain.** Give them examples of times when you have “downshifted” and found it hard to focus or think. Challenge students to identify when issues cause their own brains to downshift away from their thinking brains. When teaching this concept to students, use the free booklet, “The Inside Story: Understanding the Power of Feelings: The Heart Brain Connection.” Provided by The Institute of HeartMath ([www.heartmath.org](http://www.heartmath.org)), it is written specifically for adolescents.

**Provide structure and guidance.** Do not assume students will use the advanced skills of planning, prioritizing, and organization. By using checklists and teaching students how to prioritize when working on a long-term project, you can help develop those skills in the prefrontal cortex.

**Be patient.** The student frustrating you might not be doing it on purpose. His or her behavior might be an outcome of a brain in flux. Take a deep breath, dig a little to find out what might be causing the behavior, and work with the student to help him or her learn how to make better choices. 

**Emma S. McDonald** is co-author of *Classrooms that Spark* and *Survival Kit for New Teachers*. Her e-mail address is [emma@inspiringteachers.com](mailto:emma@inspiringteachers.com).

## Advertiser Index

Aha! Process	35	800-424-9489	<a href="http://www.ahaprocess.com">www.ahaprocess.com</a>
ASCD	44	800-933-ASCD	<a href="http://www.ascd.org">www.ascd.org</a>
California University of Pennsylvania	29	866-595-6348	<a href="http://www.cup.edu/go">www.cup.edu/go</a>
Elephant Rock Productions/Forum on Education	30	773-355-1453	<a href="http://www.erpmedia.net">www.erpmedia.net</a>
Encyclopedia Britannica	C2	800-323-1229	<a href="http://www.britannica.com">www.britannica.com</a>
Essential Skills Software	45	800-753-3727	<a href="http://www.essentialskills.net">www.essentialskills.net</a>
Family Storytelling Night	31	877-282-3237	<a href="http://www.familystorytellingnight.org">www.familystorytellingnight.org</a>
Mentoring Minds	37	800-585-5258	<a href="http://www.mentoringminds.com">www.mentoringminds.com</a>
NCTM	24	703-620-9840	<a href="http://www.nctm.org">www.nctm.org</a>
Neill-Wycik	43	800-268-4358	<a href="http://www.neill-wycik.com">www.neill-wycik.com</a>
Preferred Education Software	25	888-959-2016	<a href="http://www.pes-sports.com">www.pes-sports.com</a>
Seton Hall University	47	973-275-2728	<a href="http://education.shu.edu">http://education.shu.edu</a>
Solution Tree	3, 5, C4	800-733-6786	<a href="http://www.solution-tree.com">www.solution-tree.com</a>
The Leadership & Learning Center	13	866-399-6019	<a href="http://www.leadandlearn.com">www.leadandlearn.com</a>
The Master Teacher	C3	800-669-9633	<a href="http://www.masterteacher.com">www.masterteacher.com</a>
The Wallace Foundation	39	212-251-9700	<a href="http://www.wallacefoundation.org/principalstory">www.wallacefoundation.org/principalstory</a>
Weekly Reader	34	877-344-2834	<a href="http://www.wrconnect.com">www.wrconnect.com</a>

## A FAST TRACK TO A TRADITIONAL ED.D.

Seton Hall University's nationally recognized, accelerated doctoral program will allow you to complete your studies in just 10 weekends and two, four-week sessions over two years. In fact, more than 300 K-12 administrators in 28 states and six foreign countries have already successfully earned their degrees and achieved career advancement.

**Now accepting applications for the April 2011 cohort.**

**Loans are available to cover the entire cost of the program regardless of financial need.**



“Combined with superior teaching, strong curriculum, and an emphasis on contemporary issues, the Seton Hall experience will permit you to forge ties with a premier institution and create lasting personal and professional relationships with colleagues from all over the world.”

Sandra DeLuca, Ed.D. '09  
Director of Guidance  
Metuchen Schools, NJ

For more information, call 1-800-313-9833, e-mail [exceedd@shu.edu](mailto:exceedd@shu.edu) or go to [www.shu.edu/go/exceedd](http://www.shu.edu/go/exceedd)



COLLEGE OF EDUCATION  
AND HUMAN SERVICES  
SETON HALL UNIVERSITY

400 South Orange Avenue  
South Orange, NJ 07079  
[www.shu.edu](http://www.shu.edu)

FAST TRACK