

## Adolescent Development and How Adolescents Learn

- Timing and pacing of adolescent maturation is uneven and unpredictable. Although social, emotional, physical, intellectual, and identity aspects of development influence each other, they each have a different timetable within the same individual. In addition, sudden changes and shifts in students' personalities, behaviors, attitudes, and habits are normal.
- The second most significant growth spurt in the brain (the first is between birth and age three) occurs during adolescence. The synapses in the brain can double in number in one year of adolescence. The overproduction of synapses can also make it difficult to keep track of multiple thoughts and retrieve information quickly. The good news is that teens can re-pattern behavior, learn new skills and habits, and make significant changes in how they operate day to day. It is critical to know and understand that habits, preferences, and patterns of behavior get hardwired as students move through adolescence. If you're a couch potato at 15, you're likely to be a couch potato for the rest of your life unless there's a compelling, dramatic, transformative experience that motivates and inspires you to change and ingrained habit. Think of the teenage brain from a "use it or lose it" perspective. By age 18 the brain starts losing neurons that are not hardwired by experience – this is called "pruning," and it allows the brain to function more efficiently. The brain keeps what it uses and tosses away what it doesn't.
- The frontal cortex is one of the last parts of the brain to mature. It's the CEO of the brain, in charge of executive functions like planning, organizing, setting priorities, making sound and informed judgments, assessing risk, managing intense and out of control emotions. The brain circuit board is not completely installed until the mid twenties. There's a good reason why adolescents do not gain full adult status until they're 21. For most of adolescence, the cortex is asleep at the switch—some or even most of the time. Consequently, adolescents' judgment is highly erratic and they are capable of making both extraordinarily good judgments and really bad ones.
- The corpus callosum, which is linked to self-awareness and intelligence, continues to develop until the mid twenties.
- Under the influence of enormous hormonal changes, teenagers rely more on the emotional center (amygdala) in the limbic system than on the reason center of the brain (cortex.) During adolescence the amygdala is revved up, in hyper drive, and intense feelings like anger, fear, and elation are normal and frequent. The amygdala gets activated when "your button gets pushed," and it captures and stores emotionally intense memories. This is one reason why trauma can impede and interrupt learning.
- Adolescent biological clocks are different. Melatonin levels are elevated in the early part of the school day – the brain is saying, "it's nighttime." At the end of the day, teens are not chemically ready for sleep until around 11pm. Yet teens require more sleep than adults (at least 8 to 9 hours) and hormones critical to growth and maturation are released during sleep. Sleep is brain food. Sleep deprivation reduces REM sleep and can result in memory and judgment impairment, irritability, and mild depression.

- Adolescent social skills and interpersonal effectiveness actually decline in early and middle adolescence before they become increasingly competent in navigating social settings, new kinds of relationships, and new social expectations. Modeling, teaching, practicing, and assessing social skills is central for 13 to 15-year-olds, so students don't lose so much ground.
- Adolescent learning should merge the concrete and abstract (formal operational thinking) as much as possible. It's important to remember that most adults and adolescents spend very little time engaging in abstract thought that is divorced from living and working in the concrete world. Critical thinking and abstract ability should be taught in a concrete context as much as possible. We also need to remember that text is abstract until and unless the student makes meaning of it by connecting it to what he knows and what he has experienced.
- Students learn best in the state of "relaxed alertness" or "unanxious anticipation." Emotional turmoil can hijack kids to the land of "not learn." Transitions to help students shift gears and get "brain ready" for learning are crucial.
- Strong emotional connections with the teacher, the subject, or the task (whether positive or negative) generate learning with more "sticking power" related to memory, retention, comprehension, and appreciation. Tapping into students' excitement, anticipation, laughter, surprise, and sense of well-being and competency increases learning. It is critical to know and understand that negative feelings about a teacher or specific type of learning task will stay with students way beyond the initial event and likely influence all future experiences in a similar setting our context.
- Knowledge is constructed socially and mediated conversations with adults are essential to move learning beyond what one already knows and can do. There's a need to process information and check it out with others, so cooperative, experiential, and interactive learning works for a majority of students.
- The more "intelligences" and senses a student uses during a learning experience, the more they will retain.
- Students learning preferences and styles become even more distinct as they get older. Struggling readers find it more and more difficult to slog through text. Students who thrive on "hands-on" learning but don't get the chance to learn this way may become restless, resistant, and reluctant.
- Only 23% of kids are the linear/sequential learners. These are the learners who are "book smart" and "test smart," with the ability to process large amounts of information quickly. This 23% of students become even more savvy at "doing school," while the many students have difficulty accessing formal learning that is disconnected from their lives or a real world context.

- For many students, adolescence includes a period of questioning and challenging authority. In particular, students who have seen or experienced negative interactions with people in authority or who have very different backgrounds than most of the authority figures around them may be more likely to distrust adult authority and the intentions of adults in general. Authoritarian (as opposed to authoritative) teachers who demand, command, and use power over students are more likely to trigger responsive hostility and defiance rather than cooperation.
- Adolescent "frequent fliers" (students who experience chronic academic and behavioral difficulties) are least likely to respond positively and productively to punishment. In fact, a punitive approach to discipline without opportunities for reflection, self-correction, instruction, support, and meaningful consequences and interventions usually escalates feelings of anger, hostility, alienation, and rejection in already troubled students.
- The most significant factors that determine the frequency of high-risk behaviors among adolescents (i.e. violence, substance abuse, pregnancy etc.) are
  - their degree of attachment to school
  - their level of academic achievement
  - their social circle/friends
- Young people who behave aggressively over a long period of time share four things in common:
  - they are often unable to identify their own emotions, "read" the feelings of others, or empathize with the target of their aggression;
  - they have difficulty predicting the consequences of their actions;
  - aggression, whether verbal, psychological, or physical, is the only tool in their conflict toolbox – they don't know alternative responses; and
  - they tend to attribute hostile or aggressive intentions to new people they encounter.

### **Factors associated with resiliency and positive life chances**

Resiliency is the capacity to achieve positive outcomes in life despite personal setbacks and adverse circumstances. Communities, families, schools, and classrooms can all create conditions that provide students with a redundancy\* of these opportunities.

- Stable positive relationships with at least one caring adult "I'm on your side and on your case."
- High, realistic academic expectations and high levels of personalized support.
- Experiences of personal competency and team mastery.
- Positive family environment that reflects a warm, nurturing parenting style and includes both limit setting and respect for the growing autonomy of adolescents.
- Development of emotional intelligence and the ability to cope with stress and frustration effectively.
- Religious or spiritual anchors that nurture meaning, altruism, and a larger purpose in life.

\* *Redundancy* means more than a variety of random opportunities. It involves intentional efforts to ensure that students experience multiple "hits" of the same opportunity overtime and multiple times to practice and demonstrate the same skills and competencies overtime.