

The Teenage Brain: How Do We Measure Maturity?

March 29, 2013

Holden Caulfield is the archetypal American teenager. Or at least he was, way back in the 20th century. His misadventures, narrated in J.D. Salinger's *The Catcher in the Rye*, may seem quaint by today's standards, yet the 17-year-old reveals many of the worrisome traits that we still associate with adolescence. He acts and speaks impulsively, then regrets his actions. He is unfocused, a poor student who gets himself expelled from school. He gets into fights, drinks way too much, solicits a prostitute and gets beat up by her pimp in his seedy hotel room. The best life plan he can come up with is moving west to live as a deaf-mute. He ends up narrating his lonely story from a psychiatric bed.

Most of us would dismiss Holden's misbehavior as immaturity, but today such immaturity could easily land a teenager in jail. Is Holden—or his modern counterpart—responsible for his poor judgment and impulsivity? Should he be judged and treated like an adult, as many 17-year-olds are in 21st century America? In short, what does it mean to be a mature person in the eyes of society?

The fields of neuroscience and developmental psychology have made dramatic advances since Holden made his debut in 1949, offering fresh and useful insights into the teenage brain and behavior. And indeed policy analysts and criminal justice experts are turning to these fields for guidance in dealing with problematic adolescents. Central to this enterprise is figuring out just how much brain and behavioral science can tell us about what it means to be a mature human being.

Now two legal scholars offer a valuable overview of what's known about the maturing brain, and its relevance to public policy and justice concerns. Richard Bonnie of the University of Virginia School of Law and Elizabeth Scott of the Columbia Law School make the case in the journal *Current Directions in Psychological Science* that new scientific insights can and should guide legal decision making about teens as a group, but that it's far too early to look for scientific assistance in individual judgments.

One problem is that law and science view human development quite differently. As Bonnie and Scott note, the law basically divides people into minors—vulnerable and incompetent—and adults, who are autonomous and responsible. But psychological science has a more nuanced view of adolescence as a separate stage, between childhood and adulthood. This view is supported by neuroscience, which shows that the frontal cortex—the seat of judgment, self-control, and sensible planning—matures very gradually into early adulthood. It is out of sync with the early development of the emotional brain, and as a result there is a gap between early sensation seeking and later self-discipline.

It can be a perilous gap. In short, teenagers are attracted to novel and risky activities, especially with peers, at a time when they lack judgment and the ability to weigh future consequences. But how, specifically, should this scientific insight into teenage risk taking inform policy and legal decisions?

Bonnie and Scott do make some suggestions. Consider teenage drinking, for example, which is a form of sensation seeking and risk taking. It's been argued that 18-year-olds should be permitted to drink, since

they are considered old enough to go to war and assume other adult responsibilities. But the teenage brain is vulnerable to the effects of alcohol, and research has shown that the age at which teens start drinking—and the intensity of this drinking—are strong predictors of alcohol abuse and addiction later in life. These scientific insights argue for maintaining the 21-year-old drinking age, Bonnie and Scott say, and for intensifying efforts to keep teens from taking up drinking at all.

Teen drinking is even more problematic—potentially lethal—when combined with driving. One policy innovation that’s based solidly on behavioral science is so-called “graduated licensing”—which grants driving privileges slowly over time. Since the teenage brain’s executive functions are still “under construction,” many teenage drivers are easily overwhelmed by nighttime conditions, friends in the car, multitasking, and so forth. Graduated licenses don’t permit new drivers to drive in these distracting conditions; those privileges are introduced only as drivers gain experience. Some policy analysts believe this approach should apply to all first licenses issued before age 21.

The juvenile justice system has also been influenced by advances from behavioral science. The central issue for many years has been whether teenagers should be punished as adults or rehabilitated. The pendulum has swung from rehabilitation to harsh punishments and confinement, and recently back again—this time based on science. Specifically, policymakers now realize that immature brains make adolescents less culpable than adults, and thus less deserving of punishment. Criminality is viewed more as a natural developmental process, and less as deficient, anti-social “character.” That is, it’s something that teenagers will likely “mature out of” over time. The U.S. Supreme Court has tacitly acknowledged this emerging view of the teenage brain in at least three recent cases, calling for leniency for teenagers in sentencing decisions.

So back to the confused Holden Caulfield. Should he be held responsible for his two days of anti-social behavior? Was he making mature choices? Is any individual teenager?

This is where the usefulness of the science reaches its limit, Bonnie and Scott argue. For all the recent insights into the adolescent brain—and adolescents as a class—very little can be extrapolated from the science to illuminate individual behavior. Lawyers try to use behavioral science all the time in criminal cases—both prosecutors and defense attorneys—but this practice rests on shaky scientific ground. The research simply does not allow one to measure the maturity of the individual brain. Indeed, Bonnie and Scott, conclude, we do not yet have an accepted understanding of what a mature person looks like.

The analysis by Richard Bonnie and Elizabeth Scott is part of a package of articles on the adolescent brain, which will be published on-line in the journal *Current Directions in Psychological Science*. Wray Herbert’s blogs—“We’re Only Human” and “Full Frontal Psychology”—appear regularly in [The Huffington Post](#).