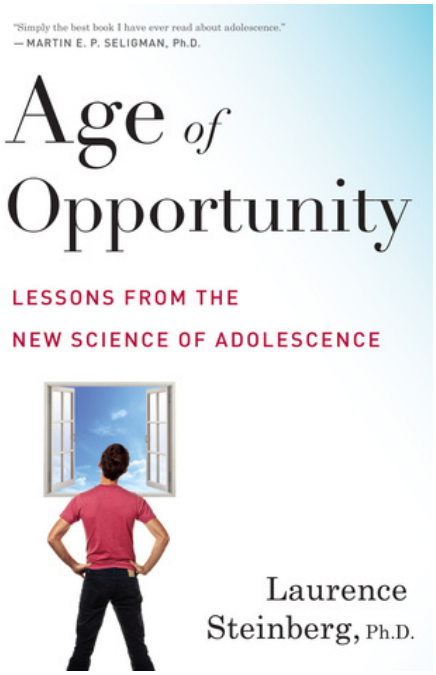

Age of Opportunity: Lessons from the New Science of Adolescence

Laurence Steinberg

Age of Opportunity: Lessons from the New Science of Adolescence

Laurence Steinberg

Age of Opportunity: Lessons from the New Science of Adolescence Laurence Steinberg
A leading authority draws on new research to explain why the adolescent years are so developmentally crucial, and what we must do to raise happier, more successful kids.

Adolescence now lasts longer than ever before. And as world-renowned expert on adolescent psychology Dr. Laurence Steinberg argues, this makes these years the key period in determining individuals' life outcomes, demanding that we change the way we parent, educate, and understand young people.

In *Age of Opportunity,* Steinberg leads readers through a host of new findings — including groundbreaking original research — that reveal what the new timetable of adolescence means for parenting 13-year-olds (who may look more mature than they really are) versus 20-somethings (who may not be floundering even when it looks like they are). He also explains how the plasticity of the adolescent brain, rivaling that of years 0 through 3, suggests new strategies for instilling self-control during the teenage years. Packed with useful knowledge, *Age of Opportunity* is a sweeping book in the tradition of *Reviving Ophelia,* and an essential guide for parents and educators of teenagers.

Age of Opportunity: Lessons from the New Science of Adolescence Details

Date	:	Published September 9th 2014 by Eamon Dolan/Houghton Mifflin Harcourt (first published January 1st 2014)
ISBN	:	9780544279773
Author	:	Laurence Steinberg
Format	:	Hardcover 272 pages
Genre	:	Parenting, Psychology, Nonfiction, Education, Teaching, Science

From Reader Review Age of Opportunity: Lessons from the New Science of Adolescence for online ebook

Poonam Desai says

Research-heavy, but well-written. Steinberg summarizes in a surprisingly readable format all of the recent research around adolescent brain and body development. He provides basic information in compelling ways that really flip the way I understood adolescence and the way we treat this group of youth as a society. Some of the statistics he provides will blow your mind, especially around the treatment of adolescents by the criminal justice system. For instance, we know that most crimes are committed by indviduals under the age of 26 (the time the PFC is fully developed), and the likelihood of youth offenders (26 and under) to repeat crimes is very low. This means we are putting youth behind bars, forcing them to lose years of their lives for crimes committed before their brains had fully developed. A testament to the idea of prevention and intervention over criminalization.

Tia Bach says

As the mom of three girls ages 14, 12, and 9, I am just beginning to see the ebbs and flows of the adolescent years. I am also the oldest of three girls, so I remember those years as well. Just in one generation, I am shocked by the new averages being thrown at me about when girls entered puberty. One pediatrician told me the average was getting closer to 9 than 10.

Age of Opportunity supports the idea that the adolescent phase of life is getting longer. The author states, "The brain is radically transformed by stress hormones like testosterone and estrogen." This is certainly not new information, but when coupled with data supporting an elongated adolescence, it's significant. I also found it interesting that while parents try to delay adolescence, society seems bent on a delayed adulthood.

Further studies show, and are illustrated in this book, that our brain is heightened during these years and captures the corresponding memories with vivid detail. In addition to all the brain studies, the book provides worrisome data comparing our teens to those in other industrialized countries.

At this point, I was convinced and craving solutions. After all, my kids are there and depending on me. I loved his basic principles: Be Warm, Be Firm, Be Supportive. It's the gray area that gets confusing. When is warm too warm (we create kids who go on American Idol and can't handle any critique and think they can sing even when faced with the reality that they can't) and firm too firm (although he does address that the punishment shouldn't be extreme and to be consistent and fair)?

As a parent, we know what we should do in a perfect, calm environment. Unfortunately, too often the chaos and expectations of our time take center stage: pressure to perform in sports and academics, an overload of technology, and constantly changing education focuses (hello, Common Core).

Overall, two-thirds of the book convinced me about a problem I suspected, while only one-third focused on possible solutions. I would have rather seen that flip-flopped.

If you are looking for a kick in the pants to search out parenting solutions to benefit your children, this is a great starting point. It's a book I'd love to see followed up by a manual with more specific solutions and

examples for parents craving to make that difference.

Note: I received a complimentary copy for review purposes. A positive review was not requested or guaranteed; the opinions expressed are my own.

Meredith says

I read this for my education course at my college and I have to say, Steinberg makes some really solid points on the role of parents, the responsibility of educators, and the plasticity of adolescents. I like how much of his writing was backed by science and personal experience. This was a good technical read for my class on adolescent learning and development.

Ashley says

As an educator-to-be, I found much of the information in this book to be repetitive. It didn't introduce any new ideas regarding Adolescent Development, and I found the personal anecdotes to be boring - to say the least.

This book could, however, provide a new perspective to parents of adolescents struggling to understand their child's' mind.

Brent Mckay says

Fascinating primer on teen brains & behavior.

Lauren Liebenberg says

What a refreshing perspective on adolescence! The advances in neuroscience as explained by Dr Steinberg, have given us a new understanding of how our brains develop, which is fascinating in itself, but the development of the brain during adolescence in particular, explains why it is such a perilous but exciting time in our lives - why it is truly the age of opportunity. As someone on the brink of teen parenting this book was illuminating, invigorating - adolescents are on full throttle and brakes dont work - and liberating: like being handed a compass when you're lost. Highly recommended.

Chaim says

I think I learned more about adolescents in this book than I did in my entire MSW program. Excellent information and pretty well-written, although it could have been more succinct in places.

Jessica Lahey says

The best book on the science of adolescence I've read.

Alberto Santoro says

Un'analisi precisa e chiara di cosa accade a livello neurobiologico e psicologico durante l'adolescenza. L'autore porta a sostegno del suo lavoro diversi studi ed esperienze professionali, fa riferimento per lo più alla realtà statunitense ma ciò non rende meno validi i diversi spunti di riflessione che l'opera contiene. Una lettura assolutamente consigliata sia per i genitori che per chi è a contatto quotidianamente con adolescenti di tutte le età.

Sarah says

Steinberg argues that society has incorrectly labeled adolescence as a period that teens just need to get through, and that current research on adolescence reveals that it is actually a window of opportunity to positively impact brain development. The chapters that focus on relaying results of research were well written and clear. He is quick to point out limitations of research when necessary.
I learned a lot about how brain development shapes adolescent behavior. The chapters that give suggestions to parents and teachers were less data driven, (I suspect because there is so little data to support any interventions) so I didn't find them as compelling. He really drives home the message that we shouldn't treat adolescents like children and we shouldn't treat them like adults – we need to understand where they're at developmentally and respond to them/protect them appropriately. And if there's one thing we can encourage in our young people to make them successful adults, its the non cognitive skill of self-regulation. I highly recommend the book and have considered copying chunks of it for my students to read.

Here are the notes I wrote as I summarized each chapter:

- During adolescence the brain is easily excitable and bad at self-regulation – this makes adolescents very vulnerable
- It's the last (and longest) window of brain plasticity (The first is during infancy)
- Brain plasticity refers to the brain's ability to create and destroy neurons as well as strengthen or prune neural circuits
- Plasticity early in life prunes circuits crucial for life (vision, language, motor skills, etc.)
- Plasticity during adolescence focuses on higher order skills that largely depend on environment
- Plasticity creates great opportunity and great risk, depending on the environment you're in
- Adolescence typically lasts from age 10 to 25 (it starts with the end of puberty and ends with social independence and responsibility
- Childhood obesity, lifestyle, stress, and environmental endocrine disruptors are driving the age of puberty down
- Adolescence is longer now than it has ever been in the past, which means adolescents will spend more years in a vulnerable brain state
- The limbic system and prefrontal cortex are both developing at different paces – our emotional systems

come online before our ability to reason does
- Adolescents are pleasure-seeking and risk-taking
- Adolescents are fully capable of understanding risks, but they are emotionally more responsive to rewards than consequences
- Being around peers increases pleasure-seeking and risk-taking behaviors
- Social centers of the brain are developing, making them focus on peers while missing things around them
- Increasing knowledge or consequences don't prevent risky behaviors
- Self-regulation and its associated characteristics are better predictors of success than IQ (in terms of relationships, work and school)
- Parents should focus on developing their child's maturity and self-regulation by being warm, firm and supportive
- American adolescents are more disengaged in school than their international counterparts
- It's acknowledged that schools need to develop students' self-regulation skills, but there are no proven methods to doing this
- An extended adolescence widens the gap between different SES levels
- Poor children are more likely to have under-developed self-control, which puts them on a path towards poverty (increasing their risk of crime, early parenthood, unemployment, and dropping out of school)
- Poor children are more likely to go through puberty earlier, while middle- and upper-class children are more likely to end puberty later (so poor children spend more time with an active limbic system before their prefrontal cortex kicks in, and wealthier children have experiences that help them take full advantage of brain plasticity while they have more developed self-control)
- There's no consensus on when an adolescent becomes an adult
- We determine when to treat them as adults using contradictory approaches
- Adolescents can reason as well as an adult in certain situations

---

GalwayGirl says

Very good overall. There is lots of neuroscience info but explained clearly so people can understand it. Makes so much sense & really found this helpful as I struggle to parent a 13 year old girl. Some information I was already aware of but good to get further insights into parenting approaches & what works.

Really liked that he clearly explained how to address problems & challenges, solid solutions were offered so I feel better equipped to handle this challenging parenting phase.

Fascinating & really enlightening so far.

Q says

Some really excellent research and ideas here (though as someone who grew up in a place without decent public transit I completely disagree about the driving age), and presented in a coherent, interesting way. A good read for any parent or educator.

Julie says

I will admit, parts of this I "sped read." Author makes a good case for understanding the now lengthy experience of adolescence and to, perhaps, cut some slack to those twenty-somethings that are still finding there way (whatever that means). The advice for parents -- well -- that's just good parenting advice... authoritarian (vs. autocratic or permission), caring, physically affectionate, normal bedtimes, healthy eating. What I wished to have learned more about is just how secondary education is supposed to take up the charge of helping adolescents with self-regulation and the growth of non-cognitive skills (socio-emotional learning). As it is, author make a throw to other organizations (e.g. CASEL).

---

sleeps9hours says

Excellent. I loved Steinberg's book on parenting, and this is a must-read as well.

Tons of parts I liked from the book:

p. 19 The Reminiscence Bump
We recall more mundane events from adolescence, whereas unusual, emotion-laden momentous and self-defining events are recalled regardless of when they occur.

p.70 Phases in the Development of the Adolescent Brain

Phase One: Starting the Engines. Around the time of puberty, the limbic system becomes more easily aroused. During this time teenagers become more emotional (experiencing and displaying higher “highs” and lower “lows”), more sensitive to the opinions and evaluations of others (especially peers), and more determined to have exciting and intense experiences—something psychologists refer to as “sensation seeking.” In most families, bickering and squabbling become commonplace between parents and children in early adolescence. Because this aspect of brain maturation is driven mainly by the hormonal changes of puberty, the start and end of this phase will be determined by the ages at which the teenager starts and finishes maturing physically.

Phase Two: Developing a Better Breaking System. During this segment, the prefrontal cortex slowly becomes better organized, a consequence of synaptic pruning and myelination. As information begins to flow more rapidly across longer distances in the brain, advanced thinking abilities—so-called “executive functions”—strengthen, which improves decision making, problem solving, and planning ahead. During middle adolescence—say, from fourteen to seventeen—parents often find that their children become much more reasonable and easier to discuss things with. A lot of the drama that had characterized the early adolescent years fades.

Phase Three: Putting a Skilled Driver Behind the Wheel. In the third phase, which is not finished until the early twenties, the brain becomes more interconnected. This is especially true with respect to the connections between the prefrontal cortex and the limbic system. This increase in connectivity results in mature and more dependable self-regulation. During the late teens and early twenties, adolescents get better at controlling their impulses, thinking about the long-term consequences of their decisions, and resisting peer pressure. Their

rational thought processes are less easily disrupted by fatigue, stress, or emotional arousal.

p. 73 A small structure inside the limbic system (called the nucleus accumbens) is the most active part of the brain for the experience of pleasure—it's the center of the reward center—and it actually gets bigger as we grow from childhood into adolescence, but, alas, smaller as we age from adolescence to adulthood.

That is why nothing—whether it's being with your friends, having sex, licking and ice-cream cone, zipping along in a convertible on a warm summer evening, hearing your favorite music—will ever feel as good as it did when you were a teenager.

p. 92 Intellectually, adolescents can understand consequences, but emotionally they are less sensitive to them than are other age groups. One of my favorite illustrations of this comes from a brain-imaging study in which adolescents and adults were presented with a series of statements, and asked to push a button to indicate whether the activity was a good idea or a bad idea. Some of the activities were obviously good ("eat a salad"); others were obviously bad ("light your hair on fire"). As you'd expect, everyone, regardless of age, indicated that the good activities were fine and the bad ones weren't. But adolescents took a little bit longer before making their decisions, even when the suggestions were as crazy as "swimming with sharks" or "drinking a can of Drano."

p. 92 The Peer Effect
The mere presence of friends makes teenagers take more chances.

p. 95 It hurts to be rejected at any age, but it's actually more painful during adolescence than at any other time. (In fact, the pain of social rejection so closely resembles physical pain in neurobiological terms that taking acetaminophen, the active ingredient in Tylenol, actually can help alleviate it.)

p. 117 Only about 25% of school performance is accounted for by intelligence.

One of the reasons tests of intelligence, talent, or ability don't predict much in school, work, or life is that they don't measure characteristics like determination, persistence, or "grit." By determination, I mean more than the willingness or ability to work hard—although that is surely a part of it. People who are determined are also dedicated enough to maintain their focus and persevere even when the going gets tough. Determination involves conscientiousness, stamina, and sustained commitment. It requires delay of gratification—investing time and energy in an activity that may not have an immediate payoff, putting work in now for a reward that won't come until much later; and that may not come at all. Surprisingly, there is no correlation between determination and intelligence, ability, or talent.

p.121 Self-regulation is at the heart of determination. The ability to control our emotions, thoughts, and behaviors is what enables us to stay focused, especially when things get difficult, unpleasant, or tedious.We rely on self-regulation to stop our minds from wandering, to force ourselves to push a little more even though we're tired, and to keep still when we'd rather be moving around. Self-regulation is what separates the determined—and the successful—from the insecure, the distractible, and the easily discouraged.

Self-regulation and the traits it influences, like determination, comprise one of the strongest predictors of many different types of success: achievement in school, success at work, more satisfying friendships and romantic relationships, and better physical and mental health. People who score high on measures of self-regulation complete more years of school, earn more money and have higher-status jobs, and are more likely to stay happily married. People who score low on these measures are more likely to get into trouble with the law and to suffer from a range of medical and psychological problems, including heart disease, obesity,

depression, anxiety, and substance abuse.

p. 122 Intelligence, as measured on most standardized tests of ability, is highly determined by genes. From about age six on, scores on tests of intelligence are remarkably stable.

Intelligence isn't as determined by one's genes as is a physical trait like height, but it is more strongly determined by genetics than most other psychological traits.

Because we can measure levels of self-regulation so early in life with the marshmallow test, and because those early levels are so predictive of future success, it's tempting to conclude that problems in self-regulation must have strong genetic underpinnings that are engraved into the brain's circuitry. Not so. Like all psychological traits, self-control has a substantial genetic component, but the influence of genes on self-control is only about half that of intelligence.

On average, children who are relatively more impulsive when they are young are also relatively more impulsive when they are older, but the correlation between early and later impulsivity is surprisingly modest. This means that it is harder to predict adolescent impulsivity from measures of childhood impulsivity than it is to predict adolescent intelligence from childhood intelligence, in part because changes in self-control during adolescence are more influenced by the environment.

Changing the environment of an infant can have a profound effect on many aspects of the baby's development, including his intelligence. Unfortunately, taking an intellectually dull adolescent and moving him into a stimulating environment will do little, if anything, to alter how smart he is. But moving an adolescent with poor impulse control into an environment that encourages better self-regulation can make a real difference. Studies show that even the most impulsive, aggressive juvenile delinquents can be helped to develop better self-regulation.

p. 125 How Parents Can Make a Difference

Be Warm:
You cannot love your child too much
Be physically affectionate
Try to understand and respond to your child's emotional needs
Provide a safe haven
Be involved in your child's life

Be Firm:
Make your expectations clear
Explain your rules and decisions
Be consistent
Be fair
Avoid harsh punishment

Be Supportive:
Set your child up to succeed
Praise your child's accomplishments, but focus on the effort, not the outcome
Don't be overly intrusive
Relinquish control gradually, as your child gets better at managing her own life
Help your child think through decisions rather than making them for him

Protect when you must, but permit when you can

p. 148 General competencies: being able to work effectively with others, being able to develop and carry out long-term strategic plans, knowing how to acquire and use new information, being able to think flexibly and creatively, and, of course, self-regulation.

p. 151 KIPP focuses on zest, grit, self-control, optimism, curiosity, gratitude, and social intelligence.

P. 156 How to Train Self-Regulation

--Training Executive Functioning

--Mindfulness meditation

--Aerobic exercise

--Mindful physical activity

--Teaching self-regulation skills and strategies (SEL programs-social and emotional learning)

--Sustained, Scaffolded Stimulation

p. 165 Entering Adolescence at a Disadvantage

The neurobiological advantage enjoyed by the affluent starts long before adolescence. Children from poor families are much more likely to have cognitive deficits than their peers from better-off backgrounds. Young people who grow up in poor households consistently score lower on tests of intelligence and executive functioning. These socioeconomic differences are apparent very early in life—as early as two years of age. And being born into economic disadvantage has long-lasting effects on a wide range of outcomes—not only educational achievement, but mental and physical health, antisocial behavior, substance use and abuse, and, of course, earnings.

Many factors contribute to intellectual differences between children from different socioeconomic strata. One of the most notable factors is also one that's unpopular to acknowledge—genetics. This must be so, given the high heritability of intelligence, and of executive functions in particular; strong and well-documented genetic influences on brain anatomy; and what social scientists call "assortative mating"—the tendency for people who bear children together to have certain characteristics in common, including socioeconomic background and intelligence.

Genes clearly contribute to socioeconomic differences in intelligence, but environmental influences actually may be more important in explaining the relative intellectual deficiencies of children from poorer families. These environmental factors include both extreme trauma, such as violence inside and outside the home, and the chronic distress associated with poverty. Stress appears to have particularly toxic effects on brain regions like the prefrontal cortex that are crucial to advanced cognitive abilities and self-control. The good news is that, because the environment plays such a strong role in the development of this part of the brain, targeted interventions can help reduce inequality. We can narrow the divide between the haves and have-nots.

p. 166 Brain imaging has shown how socioeconomic differences in executive functioning are reflected in brain anatomy. Recent studies have revealed structural differences in children's prefrontal regions that are

linked to their parents' level of education. One aspect of brain development that is most disrupted by early stress involves the circuits that connect the prefrontal cortex with the limbic system. Early disruption of these circuits will tend to impair people's later ability to rein in sensation seeking and control their emotions. So it's hardly surprising that people from poor backgrounds are more likely to have all sorts of problems associated with impulse control, like substance abuse, crime, and aggression.

p. 172 Parents from lower-class backgrounds rear their children in ways that are less likely to lead to strong self-regulation. They're more likely to use harsh discipline and physical punishment. They tend to be more erratic and inconsistent, veering from excessive control to excessive permissiveness. They generally are less warm and less gentle. This is not the case for all lower-class parents, of course, nor is it true that all middle-class parents are models of temperance, kindness, and understanding. But these general differences between poor and affluent parents have been found in hundreds of studies.

Socioeconomic differences in parenting arise from many causes. The circumstances under which poorer parents raise their children are more stressful and taxing. The communities in which they live tend to be more chaotic, dangerous, and unpredictable, which tends to make parents more controlling and less patient. They're more likely to be parenting on their own, which often makes them more permissive. They have fewer resources that might allow them to take breaks from parenting when they're burnt out, which makes it harder to stand firm when their children are demanding. And because there is a good chance they themselves were raised in similar circumstances, they're less likely to have good self-control, which is essential to good parenting.

Another reason that lower-SES parents are less likely to be calm and gentle is that, like all parents, their behavior is shaped by what their children do. Kids with weaker self-regulation are more impulsive and disobedient. Interacting with an impulsive and disobedient child makes parents themselves behave similarly—because their child flies off the handle easily, so do they. A "coercive cycle" is set in motion, in which harsh and inconsistent parenting produces problematic behavior in the child, which in turn evokes more harsh and inconsistent parenting. This cycle is more likely to occur in households where parents are stressed out.

p. 177 In order to fully appreciate how the delayed transition into adulthood has disproportionately benefited the haves and hindered the have-nots, we must consider the different forms of "capital" and how they contribute to success in school, work, and life.

In addition to financial capital, adolescents growing up in more affluent families are more likely to accumulate human capital (the skills and abilities necessary for success at school and work), cultural capital (the cultural knowledge, manners of speech and dress, and ways of behaving that signal membership in the higher social classes), and social capital (connections with others who are able to provide assistance). In case you had any doubts, social science has confirmed that it's easier to succeed in life if you're wealthy, educated, sophisticated, and well connected.

Those who grow up in affluence have still another advantage that has become increasingly important: "psychological capital." This term refers to the noncognitive skills that are now recognized as just as crucial to success as the skills that are ordinarily included in the category of human capital—it includes things like social intelligence, vitality, enthusiasm, and, of course, self-regulation. We don't deliberately foster these things in school (although, as I pointed out in the previous chapter, we could), but being able to skillfully interact with others, light up a room, make people feel good about themselves, and exercise self-restraint are just as important, if not more so, than intelligence or talent.

Various aspects of psychological capital contribute to well-being in different ways, but self-regulation is probably the most critical to success in school and at work, especially in a world in which the ability to delay gratification has become so crucial. Plenty of people succeed without being cheery, extroverted, or vivacious, but few people do so without being determined, hardworking, and persevering.

I believe there is still another type of capital essential for success. For lack of a better label, let's call it "neurobiological capital." This is the advantage that accrues from having a protracted period of brain plasticity in an environment that is appropriately stimulating. The privileged have an advantage in neurobiological capital in early life, because they are likely to be exposed to environmental stimulation during infancy, the first period of heightened brain plasticity. But they also accumulate neurobiological capital by extending adolescence, because delaying the transition to adulthood keeps the window of plasticity open for a longer period of time while people can continue to expose themselves to the kinds of experience that improve the brain. The affluent also have the resources they need to buy access to stimulating environments during this time.

As we've seen, prefrontal systems become stronger through scaffolded stimulation—challenges that requires us to use them in ways that are slightly more demanding than we're accustomed to. These are precisely the sort of challenges offered by the colleges and universities young people form privileged families attend. The advantage of staying in school longer is not just in the additional skills, credentials, connections, and capacities that are accumulated through this experience—although these advantages in human, cultural, social, and psychological capital are certainly considerable. It also comes from the opportunity to accumulate neurobiological capital.

p. 207 Some Recommendations

For Parents:
-Lessen the chance that your child will go through puberty early. Don't let them be obese, limit screen time, avoid BPA (plastics 3 & 7), phthalates, and parabens.

-Practice authoritative parenting. Be warm, be firm, and be supportive.

-Encourage activities that are likely to contribute to self-regulation. Mindfulness meditation, yoga, tae kwon do or tai chi; or at least sufficient aerobic exercise and rest.

-Be aware of the emotional and social circumstances that can undermine your child's judgment. Stressed, fatigued, or in groups with other teenagers.

-Reduce your child's exposure to stress. Make your home feel as gentle and calm as possible. Be kind, physically affectionate, and relaxed. Strive to keep outside sources of stress from impinging on your home environment. Ensure children have time after school and on weekends when they can just unwind and do nothing in particular.

-Don't worry about whether your twenty-something child is taking too long to grow up. The longer one can stay immersed in a world characterized by new and stimulating experiences, the longer one can benefit from the positive effects such experiences have on the brain.

Lindsey says

Easily the best book on adolescent psychology that I have ever read (including Steinberg's Adolescence textbook, which I assigned last semester). I plan to replace his $100 textbook with this far more reasonably priced book for my next foray into teaching Psychology of Adolescence. This is an accessible, well-written, backpack-friendly, thoroughly researched work from one of the leading experts in the field. Great discussion of multiple applications, including education, parenting, and criminal justice. Not without a sense of humor. Perhaps redundant at points, but you won't forget what you learned from this book.
