Aimed at integrating cutting-edge psychological science into the classroom, Teaching Current Directions in Psychological Science offers advice and how-to guidance about teaching a particular area of research or topic in psychological science that has been the focus of an article in the APS journal Current Directions in Psychological Science. Current Directions is a peer-reviewed bimonthly journal featuring reviews by leading experts covering all of scientific psychology and its applications and allowing readers to stay apprised of important developments across subfields beyond their areas of expertise. Its articles are written to be accessible to nonexperts, making them ideally suited for use in the classroom.

Visit the column for supplementary components, including classroom activities and demonstrations.

Visit David G. Myers at his blog “Talk Psych”. Similar to the APS Observer column, the mission of his blog is to provide weekly updates on psychological science. Myers and DeWall also coauthor a suite of introductory psychology textbooks, including Psychology (11th Ed.), Exploring Psychology (10th Ed.), and Psychology in Everyday Life (4th Ed.).

The Psychology Asymmetry of Experiencing Loss Versus Gain

By David G. Myers


Imagine — or invite your students to imagine — these well-researched everyday situations:

1. You’re about to buy a $4,000 used car, which you can purchase by selling either of two stocks you own. Which would you sell?
   a. Your $4,000 in stock X, which you purchased for $2,000.
   b. Your $4,000 in stock Y, which you purchased for $8,000.

2. Your basketball team trails by two points with time for one last shot. As its coach, would you prefer:
   a. a two-point shot attempt, hoping to put the game in overtime?
   b. a three-point shot attempt, hoping to win now?

Your baseball or softball team is tied in the bottom of the last inning, with one out—meaning a single run will win. As you take your lead off first base, your teammate hits a fly ball, which an outfielder is sprinting to catch. What odds of its being caught would compel you to hesitate before running (in hopes
of making it to third base)?

In these and other such situations, people routinely exhibit loss aversion. Psychologically, loss looms larger than gain. In experiments, people prefer taking a sure gain over flipping a coin for double-or-nothing — but will flip the coin on a double-or-nothing chance to avert a loss (Kahneman & Tversky, 1979). When stock trading, the current value of a stock represents the market’s collective prediction about its future value. Yet most investors similarly prefer to lock in a profit rather than a loss (Odean, 1998).

In sports, loss aversion can steal one’s chances to win. Most basketball coaches, aware that an average three-point shot will produce a win only one-third of the time, prefer a two-point shot attempt to put the game into overtime (Thaler, 2000). But if the team averages 50% of its two-point attempts — a median team result in NCAA basketball — and has a 50% chance of winning in overtime, the loss-aversion strategy will yield only a 25% chance of victory. New studies of “myopic loss aversion” confirm this irrational preference at the end of National Basketball Association games (Walker et al., 2018). Caution impedes conquest.

In baseball, Peter MacDonald and colleagues (2016) assembled big data showing that if that fly ball has even a 38% chance of falling as a hit, the runner should abandon caution and streak for third base — where a subsequent fly ball, hit, or infield roller could produce a win. Yet first-base runners will rarely take off running on a fly ball that has any chance of being caught. The runners are loss averse — better not to look like a fool if the ball is caught. But as these sports examples illustrate, loss aversion can, ironically, increase the odds of losing.

In their essay, Peter Sokol-Hessner and Robb Rutledge (2018) explore loss aversion’s biological roots and psychological fruits. For our ancestors, loss aversion helped avert starvation and death. “First, do no harm” has evolutionary as well as medical merit. For those on the margins, lost income can have more impact than equivalent gained income. Small wonder that loss-averse behaviors appear across species, note Sokol-Hessner and Rutledge, and that people who are most attuned to their own internal emotions are also most loss averse.

Moreover, they report, neuroimaging studies have identified two brain regions associated with loss aversion. The amygdala’s noradrenergic pathways mediate “actions to avoid aversive stimuli.” Thus, amygdala damage can eliminate loss aversion. Offsetting this is the reward-mediating striatum, with its dopamine circuits designed to reflect the subjective value of potential rewards.

It is possible that, when these mediators are unbalanced, extreme loss aversion may contribute to psychiatric disorders such as depression and hoarding. Hoarding is the “endowment effect” — our attachment to what we own and our aversion to losing it — taken to excess. In one oft-replicated experiment, people given a coffee mug demanded more money to sell it than those not given the mug were willing to pay for it (Kahneman et al. 1990). And so our homes become cluttered with things we wouldn’t today buy, yet can’t part with.

To help your students grasp the concept, invite them to imagine themselves as a big-city taxi driver. On a day when they’re not getting a lot of fares, rather than swallow a loss on the day, would they keep working until they break even, and quit sooner on days when they’re getting lots of fares and have met
their goal? If so, they are like actual taxi drivers. Rationally, taxi drivers should drive more on days with lots of fares (they make more per hour) than days with few fares. But many do the opposite, because they are loss averse (Camerer et al., 1997).

Loss aversion exemplifies an even larger principle, observed by Roy Baumeister and others (2001): “Bad is stronger than good.” Bad events trigger more misery than good events produce joy. Criticism hurts more than compliments please. Bad health decreases happiness more than good health increases it. “In everyday life,” Baumeister et al. conclude, “bad events have stronger and more lasting consequences than comparable good events.” And so it is that, as Kahneman and Tversky (1979) memorably concluded, “losses loom larger than gains.”

References


Does Montessori Schooling Work?

By Beth Morling

When famous people talk about their career trajectories, how often do they attribute successes to their experiences in preschool? That’s exactly what Julia Child, Sean “P Diddy” Combs, and Jeff Bezos say about their own Montessori backgrounds (Sims, 2011).

More than 100 years ago, Italian physician Maria Montessori used close observation and trial and error to develop a new approach to schooling and a theory of child development. Today, Montessori schools, including 500 public schools in the United States (public-montessori.org), thrive around the world. Lillard (2018) summarizes key elements of Montessori education and describes empirical studies of the method’s effectiveness.

A visit to a Montessori school reveals children alone or in small groups, working on mats or child-sized tables. Children choose their own activities. Inviting, carefully designed toys lead children to practice cognitive and motor tasks for as long as they wish, sometimes repeating a task multiple times. For example, a toddler might choose a set of 10 cylinders that gradually increase in size, slotting them into their respective holes. A 4-year-old might select a toy that invites him to tie and untie four shoelaces. Pairs of older children might work with sets of “golden beads” to practice multiplying 4-digit numbers. Montessori education provides an opportunity for psychology instructors to integrate several key lessons about psychology into a significant, real-world context, while reinforcing students’ grasp of research methods.

**Teaching Content in Context**

Montessori education is based on core psychological principles (Lillard, 2017), several of which are typically introduced in General Psychology, Child Development, or Educational Psychology courses. They include:

- Children are not “empty vessels” ready to be filled; they engage actively in their own learning.
- Children learn by physically manipulating their environments.
- Children are intrinsically motivated to learn; outside rewards like gold stars can inhibit learning.
- Children learn best when they have choice over their learning.
- Adults can interact with children in ways that help them learn.
- Peer learning is effective.

To introduce Montessori in your own classroom, first ask students to reflect on what the goals have been of their schooling so far. Some may wryly comment that one salient goal was to pass standardized assessments. Now, shift the discussion: What should be the goal of schooling? Students might nominate goals such as being an independent learner, being kind, or solving problems. Many schools hope to achieve these goals; however, the Montessori curriculum holistically integrates motor skills, reading, mathematics, art, music, and social skills.

Video is an excellent way to introduce Montessori practices. A short overview like “My Day” (at www.montessoriguide.org/video-listing/) shows multiple children choosing tasks, engaging in work, and cleaning up. Students can identify examples of principles such as free choice, motor-mind integration, concentrated attention, and self-guided social interaction.

For a more focused discussion, find a clip of a toddler engaging with a Montessori cylinder set (such as
www.bit.ly/2QtdNSb). Ask, “What does this toy help develop in the child who plays with it?” Students might mention that:

- he must notice how width, height, or volume changes from cylinder to cylinder;
- he needs to observe, compare, and decide;
- small knobs at the top strengthen pincer grip, building strength for writing;
- as sets of 10, cylinders develop the foundation of the base-10 system in mathematics; and
- materials are self-correcting, so the child receives immediate feedback on whether his choices are correct;

**Teaching Research Methods**

Do Montessori schools work better than other types of schools? Montessori makes an engaging case study for teaching research methods.

One study tracked families who had applied for a public Montessori school — only about half of whom were randomly selected for the Montessori program (Lillard & Else-Quest, 2006). Because the lottery process worked like random assignment, we can be reasonably sure that students in the Montessori and control schools were similar. The results showed that on a number of measures (e.g., achievement tests, executive function, and prosocial play), kids in the Montessori school did better.

- Present the results of the study and ask students:
  - What is the independent variable in this study? What are its levels?
  - What are the dependent variables?
  - Is this an experiment or a correlational study?
  - Does this study allow us to say that Montessori schools cause kids to learn more? What are some alternative explanations for the results?

During discussion, students can propose characteristics of an ideal study of Montessori education. According to Lillard (2018), it would involve random assignment to schools, Montessori schools that use true Montessori materials and have well-trained teachers, a variety of teachers and classrooms, a large sample, and long-term follow up on multiple measures.

Teachers can anticipate a few student concerns. Students might assume that Montessori is an elite child’s education. Most Montessori schools are private, but hundreds of public Montessori schools reach mostly low-income and non-White children. Students might wonder how children move from the choice-filled Montessori curriculum to traditional schools where autonomy is reduced. Research suggests that Montessori-educated students do very well in high school and college (Dohrmann et al., 2007; Shankland et al., 2010).

Finally, some students are surprised that children actually choose to work at challenging — rather than fun — tasks. Our undergraduates might benefit from discussing autonomy and mastery in the Zone of Proximal Development (Vygotsky, 1978), ideas they can apply to their own education. ?

**References**


