6

MINDSET MATTERS

> *"I'm just not good at chemistry. "* —Joshua, engineering major and general chemistry student at LSU, who finished the course with an A (personal communication, May 13, 2011)

This chapter is based on the work of Carol Dweck (2006), a professor of psychology at Stanford University. Her book, *Mindset*, has proved so important and the ideas within it have been so useful that they deserve their own chapter.

The chapter is organized as follows. First, we learn the meaning of the term *mindset* and examine some supporting evidence for Dweck's findings. Second, we examine why many students and faculty arrive on campus with a fixed mindset. Third, I present four strategies faculty can use to change their students' mindsets.

Fixed Intelligence or Intelligence That Can Grow?

Dweck (2006) found that people commonly hold one of two mindsets about intelligence—either it is fixed, or it can grow. Put differently, some people believe that each person is born holding a set of intellectual cards, and little can be done to augment that hand, whereas others believe that they can acquire a few aces through effort and action. You will not be surprised to hear that, although I once had a fixed mindset, the astonishing results I have seen from students have converted me to a growth mindset.

David Shenk (2010) gives several evidence-based arguments to support his assertion that "Intelligence is a process, not a thing" (p. 29). But regardless of the truth about intelligence, *beliejs* about intelligence have been repeatedly demonstrated to have an enormous effect on performance.

Mindset as Master of Your Fate

Figure 6.1, adapted from Dweck's (2006) book, contrasts the likely attitudes and actions of a person with a fixed mindset with those of someone with a growth mindset. As shown, people with a fixed mindset tend to avoid challenges, give up easily, ignore criticism, and find the success of others threatening. By contrast, people with a growth mindset embrace challenges, persevere, use effort to achieve mastery, benefit from criticism, and find motivational fuel in the success of others.

We can conclude from Dweck's work that a fixed mindset is kryptonite in any arena, including academia. Yet so many of us—both students and faculty—believe that intelligence is largely innate and fixed. These beliefs are devastating because our confidence, or lack thereof, that we can successfully perform a task greatly influences how motivated we are to even attempt that task (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010).

Three Illustrations of the Power of Mindset

Mindset (Dweck, 2006) contains references to a number of peer-reviewed published research articles supporting the findings summarized in Figure 6.1. Here I present three illustrations supporting Dweck's findings, chosen somewhat arbitrarily given the treasure trove of supporting research: (a) a study from David H. Uttal (1997) about the attitudes of Asian and American mothers and children about mathematical ability; (b) an intervention cited in a paper from Aguilar, Walton, and Wieman (2014); and (c) anecdotal evidence from a middle-school math teacher. My own miracle portfolio, from which the stories of many students are told throughout this book, also provides strong support for Dweck's findings. Your own miracle portfolio, if it does not already do so, will soon.

Of Course They're Better at Math—They re Asian

David H. Uttal (1997) asked Japanese, Taiwanese, and American mothers—using many different questions—to assess the importance of four aspects of a school child's performance: "effort, natural ability, the difficulty of the choolwork, and luck or chance" (p. 168). American mothers rated effort as significantly less important than did Asian mothers, and they also rated .nnate ability as significantly more important than did Asian mothers.