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What is your mindset about learning?

Imagine that you're teaching a lesson this week on dosages for animal injections and how to calculate them. Your lesson will cover how to convert between metric units and English units, such as kilograms and pounds; how to determine appropriate concentrations for injections based on an animal's body weight; and how to properly document a dosage as its numeric value and descriptive units (for example, 5 mg/kg). Your slides are ready for instruction, with specific scenarios drawn from your institution's animal facility and with examples that help illustrate how to medicate an animal. You have even composed worksheets to hand out for problem-solving exercises.

Then, standing before your class, you sense several might not be so interested in this learning session. People are squirming, looking down, gazing off. In her article on "Body Language Basics," Ann Marie Dinkel has covered these cues as indicators of discomfort when they occur during training situations¹. You decide to ask members of the class what they think about this session, and you repeatedly hear the response: "I've never been good at math." This statement is so common amongst us, and often it has already been reinforced in school systems before our staff even reach the work environment.

Recent efforts to promote science, technology, engineering and math are starting to turn the tide, but teachers and trainers still hear this refrain and see the facial expressions of reluctance and unease surrounding math. Yet we know that math is a critical component of laboratory animal science. The wrong dosage can mean the difference between improved health or death of an animal. Recording the wrong numbers can result in unacceptable data when evaluated by a regulatory agency. The wrong monetary charges for per diems can anger investigators. Doing math is just so important.

Given math's significance, what is an effective approach to address this lament that a student has "never been good at math," or to tackle any other difficult topic

for that matter? Do you accommodate the student's situation, saying that there won't be much math on the exam or that someone will be on hand to help? Or, taking a different approach, do you acknowledge the momentary difficulty and work through the problems—step-by-step—with the trainee? In her book *Mindset: The New Psychology of Success*, the psychologist Carol Dweck describes these as two opposing strategies for teaching and learning, with the former illustrating a fixed mindset and the latter a growth mindset². A fixed mindset can leave students mired in the same difficult situation, whereas a growth mindset, according to Dweck, can guide and transition students out of their usual ruts.

Dweck applies her work to education and to the creation of motivational learning environments for both children and adults. Dweck dedicates a few pages of her book to the topic of corporate training and explains why it often fails. Her perspective is that many hiring managers have fixed mindsets and look for existing talent but not a person's potential. Such managers are not interested in coaching and developing their staff to build capability and capacity in their workforce. Dweck applauds those managers with growth mindsets, who offer training opportunities, recognize improvement in performance after a training session and recognize that staff capabilities can be developed.

My impression is that when we in laboratory animal science put on our 'trainer hats,' as most of us do at some point, we show more of a growth mindset. We know that effective training is critical to support regulatory compliance, ensure the intended outcomes of research and uphold the welfare of animals used in studies. We are passionate about sharing our knowledge, skills, and attitudes.

Let's then revisit the original scenario that I described and recall a time when you led a learning activity or training session. What was your mindset, as a trainer, and what was that of your participants? Were you thinking about their growth poten-



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tial, and were they receptive to your learning materials? Or was it business as usual with another group of trainees? It can be a huge challenge for any of us to change our mindsets. Every word and action can be meaningful and sends a message to others. As trainers we need to be conscious of that. Similarly, when we are the ones learning we need to be receptive to changes in our own mindsets. We can't effectively engage in a topic with a fixed mindset, especially when that mindset is negative. Neither can we charge ahead with audacious and unrealistic expectations about the power of growth mindsets in training. Sometimes we are faced with limited resources, so we must fit our attitudes and approaches to do the best we can within a given situation.

Our brains are not fixed anatomical structures; the very research on neuroanatomy and physiology that we support in lab animal facilities demonstrates that the brain is facile and can change. The brain adapts, gets stronger and responds when we learn. It grows. As trainers, we play a fundamental role in this learning process and in the 'setting of minds'.

1. Dinkel, A.M. Body Language Basics. *ALN Magazine* (September 2015).
2. Dweck, C. *Mindset: The New Psychology of Success* (Ballantine Books, New York, NY, 2006).