From Harvard: A Review of the "NED Talk"

Neuroscience research backs up Ned's GR8 8

by Christina Hinton, Ed.D.

If you're a teenage speaker brought in to address a crowd of teachers on the subject of how you and your peers learn best . . . what are you going to say? In this funny and fast-paced "NED talk," Ned knocks out eight powerful conditions of learning that can change everything for students.

Ned's learning principles are based on research in Mind, Brain and Education (Hinton et al., 2012). Ned begins by sharing that he has to "feel OK" to learn effectively. Indeed, neuroscience research confirms that emotion is fundamental to learning (Hinton, Miyamoto and della Chiesa, 2008). In the words of neuroscientists Immordino-Yang and Damasio (2007): "We feel, therefore we learn" (p.1). Emotion acts as a rudder to guide students' learning, helping them gravitate toward positive situations and away from negative ones. This means, if learning experiences are positive, students will be motivated to engage in them. On the other hand, if learning experiences are riddled with stress or other negative emotions, students will jump hoops to get out of them.

Ned then goes on to explain that it is easier for him to learn when "it matters" and "it's active." In fact, neuroscience research suggests that active engagement and relevance are necessary for learning (OECD, 2007). The changes in brain circuitry thought to underlie learning do not occur when individuals are passively exposed to information that is not relevant to their goals (Ahissar et al., 1992; Recanzone et al., 1992; Recanzone et al., 1993; Recanzone and Wurtz, 2000; Ruytjens et al., 2006; Weinberger, 2008; Winer and Schreiner, 2011). In educational terms, this means that if students are passively sitting in a class while a teacher is lecturing, they are not necessarily learning anything. Students will learn more effectively when they are actively engaged in learning activities that they care about. The good news is that teachers can make almost anything relevant to students by using multiple pathways to core knowledge (Gardner, 1983; Rose and Strangman, 2007). For example, if students are learning fractions, they can choose to learn them

through baking cupcakes, building a birdhouse, or sewing a dress —all of which involve measuring with fractions.

Finally, Ned discusses the importance of working on his skills over time with support. The brain continually adapts to experiences, a property neuroscientists call plasticity (Singer 1995; Squire & Kandel 2009). The brain is made up of networks of interconnecting nerve cells called neurons and supportive glial cells. As students learn — playing a math game online, conducting a chemistry experiment, or reading an article like this one — these experiences gradually sculpt connections among neurons in the brain. Connections that are used most often are strengthened, and those that are used least often are gradually weakened or pruned. As Ned says, "use it or lose it." Students need opportunities to reinforce their learning. Formative assessment is a powerful pedagogical technique for supporting student learning. Formative assessment involves ongoing assessment throughout the learning process for the purpose of shaping teaching and learning (OECD, 2005). Educators use formative assessment to tailor instruction to meet each student's current needs. In tandem, students use it to inform their next steps in learning. In this way, formative assessment provides students with coaching throughout the learning process, opportunities to think back on their learning, and support for planning their next steps, all of which Ned recommends.

By the way, Ned also recommends zesty party mix, so get yourself a bag and enjoy the video!

Funding from the Nellie Mae Education Foundation made this animation possible.

URL:

http://www.youtube.com/watch?feature=player_embedded&v=p_BskcXTqpM

Associated Papers (see www.studentsatthecenter.org to download)

"Mind, Brain, and Education" by Christina Hinton, Kurt Fischer, and Catherine Glennon (2012)

"Teachers at Work—Six Exemplars of Everyday Practice" by Barbara Cervone and Kathleen Cushman

Further Resources:

OECD's Brain and Learning
www.oecd.org/edu/ceri/centreforeducationalresearchandinnovationceri-brainandlearning.htm

Center on the Developing Child at Harvard University
http://developingchild.harvard.edu/

International Mind, Brain and Education Society
www.imbes.org

Mind, Brain and Education Journal
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1751-228X

Neuroscience and the Classroom: Making Connections
www.learner.org/resources/series214.html

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