# Overview of Engaging Students

What does *engaging students* really mean? What do terms such as ***active engagement, total participation techniques, thinking strategies, student engagement, cooperative learning,*** and ***whole-class discussions*** all have in common? In general, all of these ideas are focused on moving away from students as passive learners. Advances in brain imaging have provided new insights into how students learn, which has prompted new discussions about teaching. Jensen (2008) describes brain-based learning in three words: "engagement, strategies, and principles" (p. 4). In other words, it is the engagement of strategies based on [principles of] how the brain works. While a variety of brain research has provided many insights relative to teaching, we will focus on two "big ideas" here that relate specifically to engaging students: (1) Physical activity is critical to learning, and (2) learning is a social endeavor.

## Physical and Social Engagement

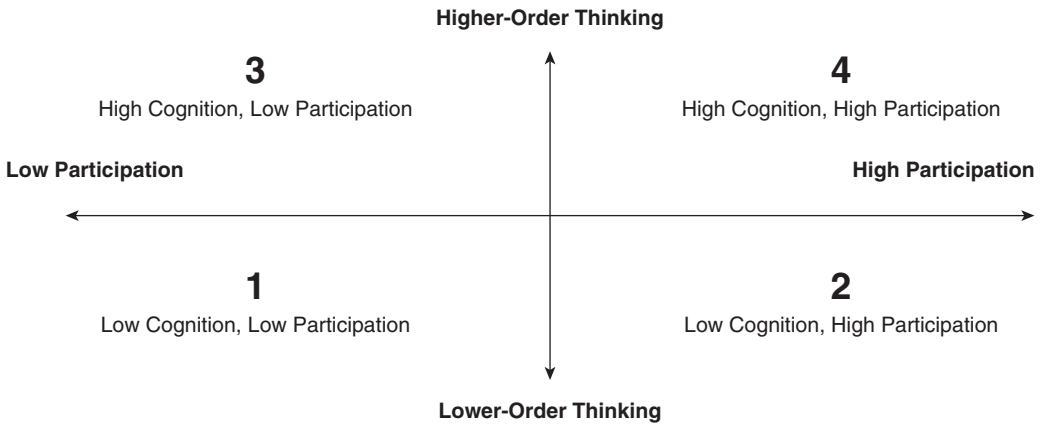
Physical activity elevates the brain chemicals that affect thinking and learning (Erikson, Hillman, & Kramer, 2015; Jensen, 2008). This is one reason many schools are reinstituting recess (Strauss, 2016). While it may not be possible to change recess or school schedules, it is possible to add physical movement to mathematics teaching. One easy-to-implement strategy is the use of **learning partners**—students find their own or prearranged partner and meet with him or her to discuss ideas about a task. By asking students to move and find a place to have a stand-up conversation (instead of turn and talk to their neighbor), physical movement has been incorporated. Of course, this is not the same effect as 30 minutes on the playground, but it can impact students' motivation and learning.

Teachers have known for some time that working in cooperative groups and using whole-class discussions are valuable to support students' learning. Through recent brain research, we know that positive social classroom activities can positively influence the brain; however, negative classroom social interactions and relationships can have the reverse effect (Jensen, 2008; Lieberman, 2014). Jensen (2008) recommends using targeted, planned small groups (as in cooperative learning) in which positive relationships can be fostered.

Himmele and Himmele (2017) combine a focus on brain research (participation) and high-level thinking (cognition) in their **Total Participation Techniques (TPT) Cognitive Engagement Model** shown in Figure 4.1.

The intersection of the two continua produces four quadrants. Quadrant 1 teaching is low-level thinking with little participation from students—for example, students passively listening (at least some of them) to their teacher telling them how to solve a problem. Mathematics teaching can get stuck in Quadrant 1, severely limiting student learning. Quadrant 2 teaching actively engages students, but the tasks are at low cognitive levels. Many "fun" math activities actually fall into this quadrant. At face value, it may seem as if students are engaged, but it is not likely their brain is engaged in mathematical reasoning. Quadrant 3 teaching is using high-level thinking tasks or questions but only engaging a handful of students. Quadrant 4 teaching engages all students and focuses on high-level thinking. It is important to point out that aspects of teaching could fall within all four quadrants, but it is critical to spend significant time in Quadrant 4 to ensure *all* students are learning at high levels.

**Figure 4.1** **TPT Cognitive Engagement Model**




*Source: Himmele, P., and Himmele, W. (2017).* Total Participation Techniques: Making Every Student an Active Learner *(2nd ed.). Alexandria, VA: ASCD.*

## Engagement Techniques

The rise in attention to brain-based/engaged learning has led to many techniques that teachers can infuse into their teaching to support high participation in their students. Himmele and Himmele (2017) suggest 51 total participation techniques, such as one-word summaries, quick-writes, and bounce cards. They include suggestions on how to ensure high-level thinking with each technique. Another source is the Thinking Collaborative, which includes over 160 techniques for engagement as well as facilitator moves (www.thinkingcollaborative.com). In fact, there is a nearly endless list on the Internet. It is important to remember to combine these **engagement techniques** with high-level thinking to optimize student learning.

NOTES