

the presence of another, our breath comes easily, our heartbeat is regulated, we don't sweat nervously, our thinking is clear, and we feel open, expansive, and in sync. Oxytocin is the brain's "stand down" signal to the amygdala.

In the previous section, we looked at how intellectual capacity or brain-power is physically grown through the cellular structures in the brain. In this section, an important takeaway is that it's through the nervous system that individuals build the physical foundation for positive, receptive relationships. Relationships are not just emotional; they have a physical component. Relationships exist at the intersection of mind-body. They are the precursor to learning. When anyone experiences others in an environment like a classroom that is inattentive or hostile, the body picks up that information through the autonomic nervous system and sends it up to the RAS and amygdala. There the amygdala gets the information that it's not socially, emotionally, or intellectually safe and sends out a distress signal to the body. The body starts to produce stress hormones that make learning nearly impossible. Even if the environment isn't hostile but simply unwelcoming, the brain doesn't produce enough oxytocin and begins to experience anxiety. This anxiety triggers the sympathetic nervous system, making one think he is in danger because the brain doesn't experience a sense of community.

When we look at the stress some students experience in the classroom because they belong to marginalized communities because of race, class, language, or gender, we have to understand their safety-threat detection system is already cued to be on the alert for social and psychological threats based on past experience. It becomes imperative to understand how to build positive social relationships that signal to the brain a sense of physical, psychological, and social safety so that learning is possible.

**Figure 3.4** Features of The Brain's Safety-Threat System

<b>Systems</b>	<b>Avoiding</b>	<b>Approaching</b>	<b>Attaching</b>
<b>Purpose</b>	Detect threats to physical, social, and psychological safety	Seek out well-being and reward despite obstacles	Connect with others in order to increase protection and connection
<b>Brain Structures</b>	Reticular Activating System (RAS), the amygdala, and the sympathetic nervous system	RAS, the thalamus, and the neocortex, and the parasympathetic nervous system	RAS and the polyvagal nervous system

(Continued)

Figure 3.4 (Continued)

Motto	Move Away From Pain	Move Toward Pleasure	Connect to Protect
<b>Focus</b>	Focused on assessing risk and threat in the environment based on deep culture and past experiences in sociopolitical context	Focus on increasing motivation to seek out those things that make one feel good physically, socially, and psychologically. If something doesn't lead to reward, well-being or feeling good, the brain will not pursue it.	Focus on finding a tribe to help share chores, find food, provide community so one can focus on learning, making art, reflection, exploration, and innovation.
<b>Physical Reactions</b>	Release of cortisol, adrenaline to prepare for defense or escape when triggered Shrinks working memory	Release of dopamine to reward the effort of seeking well-being. Motivates us to want to do it again.	Release of oxytocin to encourage bonding with others. The presence of oxytocin puts the safety-threat detection system in the amygdala on pause.
<b>Social Implications</b>	<ul style="list-style-type: none"> <li>• Trust or lack of trust</li> <li>• Self-protection over rapport</li> </ul>	<ul style="list-style-type: none"> <li>• Engagement/disengagement</li> <li>• High or low self-motivation</li> <li>• Growth or fixed mindset</li> </ul>	<ul style="list-style-type: none"> <li>• Feeling included or marginalized</li> <li>• Openness for connection or post traumatic stress</li> <li>• Compassion or self-preservation</li> </ul>

Source: Inspired by Hanson, R. (2013). *Hardwiring happiness: The new brain science of contentment, calm, and confidence*. New York: Harmony Books.

### CULTURALLY RESPONSIVE BRAIN RULES

So, what do we do with all this information about the brain and how it works? I have integrated the most important information from the first three chapters into six core design principles to make it easier to remember and reference. When you understand these brain rules, it becomes easier to understand how the brain uses culture to interpret threats and opportunities. I have highlighted the implication each principle has on culturally responsive teaching.