

Table 2.1
Key functions of areas of the brain.

Area	Key Functions
Cerebral cortex	Processes sensory information; regulates various learning and memory functions
Reticular formation	Controls bodily functions (e.g., breathing and blood pressure), arousal, sleep–wakefulness
Cerebellum	Regulates body balance, posture, muscular control, movement, motor skill acquisition
Thalamus	Sends inputs from senses (except for smell) to cortex
Hypothalamus	Controls homeostatic body functions (e.g., temperature, sleep, water, and food); increases heart rate and breathing during stress
Amygdala	Controls emotions and aggression; assesses harmfulness of sensory inputs
Hippocampus	Holds memory of immediate past and working memory; establishes information in long-term memory
Corpus callosum	Connects right and left hemispheres
Occipital lobe	Processes visual information
Parietal lobe	Processes tactile information; determines body position; integrates visual information
Temporal lobe	Processes auditory information
Frontal lobe	Processes information for memory, planning, decision making, goal setting, creativity; regulates muscular movements (primary motor cortex)
Broca's area	Controls production of speech
Wernicke's area	Comprehends speech; regulates use of proper syntax when speaking

their left hands claimed they were holding nothing. Apparently, without the visual stimulus and because the left hand communicates with the right hemisphere, when this hemisphere received the input, it could not produce a name (because language is localized in the left hemisphere) and, with a severed corpus callosum, the information could not be transferred to the left hemisphere.

Brain research also has identified other localized functions. Analytical thinking seems to be centered in the left hemisphere, whereas spatial, auditory, emotional, and artistic processing occurs in the right hemisphere (but the right hemisphere apparently processes negative emotions and the left hemisphere processes positive emotions; Ornstein, 1997). Music is processed better in the right hemisphere; directionality, in the right hemisphere; and facial recognition, the left hemisphere.

The right hemisphere also plays a critical role in interpreting contexts (Wolfe, 2001). For example, assume that someone hears a piece of news and says, “That’s great!” This could