

# Key Terms

- **Amygdala:** A structure located in the temporal lobe of the forebrain that perceives and evaluates a potentially threatening event or circumstance. Its functioning can be affected by an increase in stress-induced cortisol. The amygdala matures early in life and plays a critical role in the body's learned response to fear (National Scientific Council on the Developing Child, 2010; Society for Neuroscience, 2016).
- **Anterior cingulate:** This structure lies between the frontal lobe of the cerebral cortex and emotion-related brain regions. The anterior cingulate receives messages from many brain regions and coordinates all of the information to regulate both cognitive and emotional processes (Zelazo, Carlson, & Kesek, 2008). The anterior cingulate is involved in controlling behavior in challenging situations and making adjustments to behavior when a strategy is not working (Luu & Tucker, 2002).
- **Cerebellum:** The part of the brain at the back of the skull that is responsible for the coordination and regulation of muscular activity.
- **Cerebral cortex:** The outer layer of the cerebrum that consists of four lobes: frontal, parietal, occipital, and temporal. The four lobes of the cerebral cortex are responsible for the important functions of processing cognitive, emotional, behavioral, and sensory information (Society for Neuroscience, 2016).
- **Cognition:** The mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.
- **Cognitive development:** The process of growth and change in intellectual/mental abilities such as thinking, reasoning, and understanding. It includes the acquisition and consolidation of knowledge.
- **Cognitive flexibility:** The ability to adjust when we acquire new information, allowing us to think creatively, catch mistakes and fix them, and gain a new perspective.
- **Cross-model categorization:** Applying what one has learned about an object through one sense and applying it to one's experience of the same object using another sense.
- **Deferred imitation:** Repeating an action or sound after a delay of at least 24 hours.
- **Dorsolateral prefrontal cortex:** One of the most sophisticated areas of the cerebral cortex involved in the planning, organization, and regulation of behavior.
- **Executive functioning:** A set of cognitive skills that controls impulses and filters out distractions. Executive functions allow children to focus their attention, organize information, put a plan into action, and also have a back-up plan if necessary (Diamond, 2006).
- **Explicit memory:** The kind of memory that entails conscious awareness of using recall of past experiences or recognizing that something is familiar.
- **Frontal lobe:** The frontal lobe of the cerebral cortex is located at the very top, front of the brain, and is the last part of the brain to develop fully.

Functions of the frontal lobe include (Society for Neuroscience, 2016):

- starting and coordinating motor movement;
  - higher order cognitive skills: thinking, planning, problem solving—all necessary for executive functioning; and
  - personality and emotional processing.
- **Hippocampus:** The hippocampus is responsible for the storage of long-term memories as well as for the memory of the location of objects or people (Society for Neuroscience, 2016).
  - **Implicit memory:** Memory that is stored and accessed unconsciously.
  - **Inhibitory control:** The ability to control impulses and filter out distractions.

- **Medial prefrontal cortex:** The area of the brain that is responsible for making associations between context, locations, events, and corresponding adaptive responses, particularly emotional responses. Accordingly, it is involved in both memory and decision-making due to the fact that almost all these tasks entail the ability to recall the best action or emotional response to specific events in a particular place and time.
- **Occipital lobe:** The function of the occipital lobe is to process visual information, such as shapes and colors (Society for Neuroscience, 2016).
- **Perspective taking:** The ability to see things from someone else's point of view.
- **Prefrontal cortex:** The front part of the frontal lobe. This region of the brain is widely considered the center of executive functions and is responsible for regulating thought, emotions, and actions.
- **Procedural memory:** The unconscious memory of skills and how to do things, particularly the use of objects or movements of the body, such as how to make a ball roll or how to get a toy to make a sound.
- **Self-regulation:** The ability to exert control over one's attention, emotion, thinking, and behavior. It is used interchangeably with self-control.
- **Superior temporal sulcus:** Situated in the temporal lobe, it processes cues about the direction of other people's attention.
- **Sustained attention:** The ability to focus and maintain attention even in the face of distractions.
- **Symbolic thinking:** A developmental milestone beginning around 18 months old, where children represent people, objects, ideas, or events with images, words, or in play. For example, holding a banana up to one's ear and mouth as though it were a phone.
- **Temporal lobe:** The temporal lobe has a variety of important functions, which include (Society for Neuroscience, 2016):
  - processing auditory information—such as hearing different pitches of sound,
  - language recognition—understanding what words mean,
  - storing visual memory—such as remembering a familiar face,
  - short-term and long-term memory—through a structure called the hippocampus, and
  - emotional responses—through a structure of the temporal lobe called the amygdala.
- **Theory of mind:** The understanding that others have their own thoughts and feelings that can be different from one's own thoughts and feelings.
- **Ventromedial prefrontal cortex:** A part of the prefrontal cortex that is involved in the inhibition of behavior (including emotions) and decision making.
- **Working memory:** The capacity to temporarily hold and manipulate information necessary to complete a task.