

Implications for Teaching

Recent Research Suggests	Teaching Suggestions
The brain performs many functions simultaneously. Learning is enhanced by a rich environment with a variety of stimuli.	<ul style="list-style-type: none"> • Present content through a variety of teaching strategies, such as physical activities, individual learning times, group interactions, artistic variations, and musical interpretations to help orchestrate student experiences.
Learning engages the entire physiology. Physical development, personal comfort, and emotional state affect the ability to learn.	<ul style="list-style-type: none"> • Be aware that children mature at different rates; chronological age may not reflect the student's readiness to learn. • Incorporate facets of health (stress management, nutrition, exercise) into the learning process.
The search for meaning is innate. The mind's natural curiosity can be engaged by complex and meaningful challenges.	<ul style="list-style-type: none"> • Strive to present lessons and activities that arouse the mind's search for meaning.
The brain is designed to perceive and generate patterns.	<ul style="list-style-type: none"> • Present information in context (real life science, thematic instruction) so the learner can identify patterns and connect with previous experiences.
Emotions and cognition cannot be separated. Emotions can be crucial to the storage and recall of information.	<ul style="list-style-type: none"> • Help build a classroom environment that promotes positive attitudes among students and teachers and about their work. • Encourage students to be aware of their feelings and how the emotional climate affects their learning.
Every brain simultaneously perceives and creates parts and wholes.	<ul style="list-style-type: none"> • Try to avoid isolating information from its context. This isolation makes learning more difficult. • Design activities that require full brain interaction and communication.
Learning involves both focused attention and peripheral perception.	<ul style="list-style-type: none"> • Place materials (posters, art, bulletin boards, music) outside the learner's immediate focus to influence learning. • Be aware that the teacher's enthusiasm, modeling, and coaching present important signals about the value of what is being learned.

<p>Learning always involves conscious and unconscious processes.</p>	<ul style="list-style-type: none"> • Use "hooks" or other motivational techniques to encourage personal connections. • Encourage "active processing" through reflection and metacognition to help students consciously review their learning.
<p>We have at least two types of memory: spatial, which registers our daily experience, and rote learning, which deals with facts and skills in isolation.</p>	<ul style="list-style-type: none"> • Separating information and skills from prior experience forces the learner to depend on rote memory. • Try to avoid an emphasis on rote learning; it ignores the learner's personal side and probably interferes with subsequent development of understanding.
<p>The brain understands best when facts and skills are embedded in natural spatial memory.</p>	<ul style="list-style-type: none"> • Use techniques that create or mimic real world experiences and use varied senses. Examples include demonstrations, projects, metaphor, and integration of content areas that embed ideas in genuine experience.
<p>Learning is enhanced by challenge and inhibited by threat.</p>	<ul style="list-style-type: none"> • Try to create an atmosphere of "relaxed alertness" that is low in threat and high in challenge.
<p>Each brain is unique. The brain's structure is actually changed by learning.</p>	<ul style="list-style-type: none"> • Use multifaceted teaching strategies to attract individual interests and let students express their auditory, visual, tactile, or emotional preferences.
<p>Caine, R.N., Caine, G. (October 1990). Understanding a Brain Based Approach to Learning and Teaching. <i>Educational Leadership</i> 48, 2, 66-70. (Excerpts). Adapted by permission of the Association for Supervision and Curriculum Development. Copyright 1985 by ASCD.</p>	