

Strength-Based Strategies for Students with Learning Disabilities

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Current Research

What Does The Research Say?

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Research Question

The purpose of this poster is to research:

• A Theoretical base for a strength-based approach, specifically through current research in the area of neuroscience and then present specific brain-based strategies for use in the classroom to help students with LDs.

Problem to Solve / Importance

- Should we focus on a student's LD or their strengths in helping them overcome learning challenges?
- This is important because to much emphasis on the problem may exacerbate the LD.
- How can we harness neuroscience research to take a strength-based approach to LD's?

How Can The Research Be Used?

- Allow students to learn according to their own styles.
- Use different learning styles that are more multi-sensory.

Teacher Strategies

- <u>Kinesthetic</u> Incorporate movement in the learning process.
- Use concrete objects in the learning process, such as wooden letters, numbers, etc...
- Visual
- Use pictures and multi-media material (Comics).
- Look at pictures in a book before reading.
- Draw mind maps to help reading and retention.
- Use good visual software program.
- Have an uncluttered work area.

Auditory

Talk about the book that will be learned in class.

- •Make sure instructions are orally clear. •Get the student to record the
- information so it can be listened to.

- 1) Different parts of the brain process different forms of information.
- Gray matter in different parts of the brain = nerve cells = processing information.
- White matter in different parts of the brain = deeper part of brain = facilitates info processing via connective tissue (myelin).
- Students with LD have certain areas of the brain that have a lower amount of Gray and White matter, leading to learning difficulties.
- 1) Different amount of brain activity is directly related to the grey and white matter.
- 2) The following are areas of the brain that are active during reading.



Broca's area Inferior frontal gyrus (articulation/word analysis) Dyslexic

 The following is a brain scan showing high, med, and low levels of brain activity in parts of the brain when a student reads; directly proportional to the amount of grey and white matter in those regions of the brain.



What Does The Research Conclude?

- 1. There is conclusive evidence that some students have less grey and white matter in specific portions of their brain.
- Moreover, there is conclusive research that stronger portions of the brain can be used to offset processing deficiencies in parts of the brain with lower levels of grey and white matter.

References.

Brown WE, Eliez S, Menon V, Rumsey JM, White CD, Reiss AL. Preliminary evidence of widespread morphological variations of the brain in dyslexia. Neurology 2001; 56: 781–3

Demb JB, Boynton GM, Heeger DJ. Functional magnetic resonance imaging of early visual pathways in dyslexia. J Neurosci 1998; 18: 6939

White and Grey Matter Regions of the Brain

