

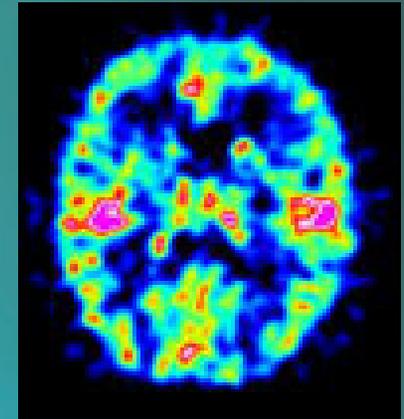
Pet Scans and What They
Reveal About

Cortical
Function

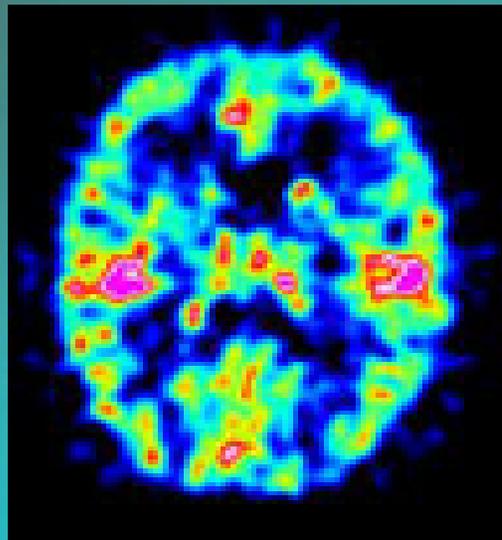
Studying the area of the brain used in specific functions is difficult...

- According to Dr. Richard Haier of the UC Irvine Brain Imaging Center
- This question can be studied through PET scan research.

But a priori hypotheses for specific brain areas are necessary in order to allow this study.

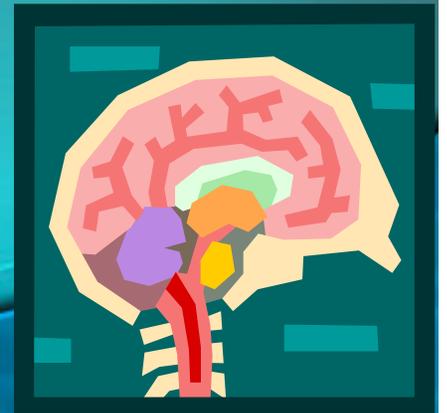


Pet scans measure metabolic changes in cortical regions.



Pet scans...

- Allow the researcher to identify the portion of the cerebral cortex being used.
- And to understand the process the individual uses in solving the problem.



Researchers have been able to identify differences in brain function in Reading...



But math has proven to be harder to study.



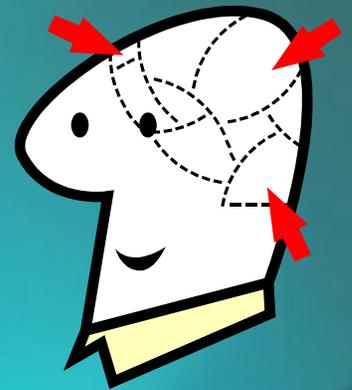
Researchers are better able to identify the cerebral area used in reading...

- Because the process of reading is easily analyzed.
- Therefore, the Pet Scan can be utilized to identify differences in the cortical process between individuals who have reading difficulties and those who do not.



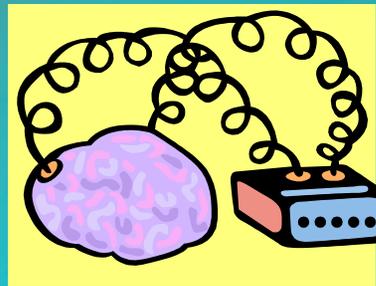
Unlike reading where cortical use is stable, math seems to utilize different parts of the brain depending on the problem.

- The result has been that identifying the cortical area affected in students who have math disorders is problematic.



Past studies...

of dyslexic and normal brains, using various imaging techniques, suggest links between brain structure and a reading disability.



These studies have led to some interesting conclusions.

Difficulty processing visual-spatial information needed to see words or letters in proper shape or order is not usually the primary reason for reading disorders.



Instead....



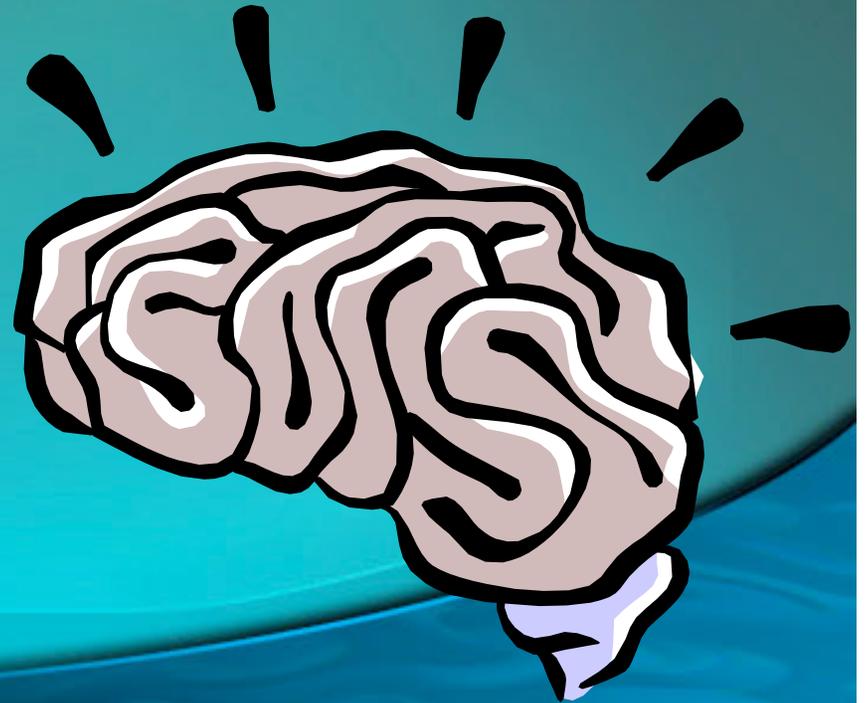
- Most have phonological problems, or difficulty processing language-sounds.
- Phonological problems are known to be strong predictors of a reading disability and persist even after adequate reading levels are reached.
- These difficulties interfere with processing unfamiliar words and learning new material.

Since sound symbol relationships are important in foreign language

It is not surprising that many individuals who have reading difficulties also have foreign language difficulties.

These findings...

Have been critical for directing research and for studying differences in brain structure. They have shed light on the etiology of disabilities.



But while these objective findings prove interesting

They do not give us enough information about the individual or the brain to allow for diagnosis.

They do, however, explain some of the differences between Learning Disabled Individuals and Individuals who are not diagnosed with a disability.

The David Center

Has produced this Power Point Presentation to help you understand how the brain functions in learning.

Please feel free view other Power Point Presentations.