

# *Road Blocks to Learning*



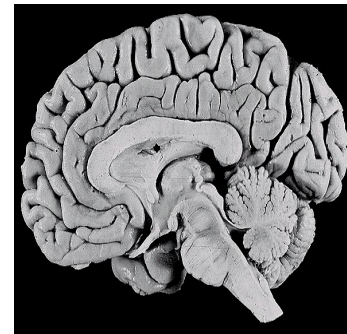
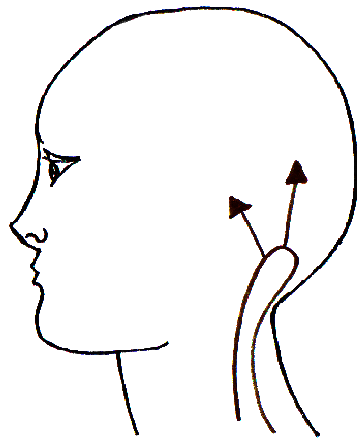
**by Drina Madden**



# The Working Brain

- **The Works**
- **Glitches**
- **Repairs**

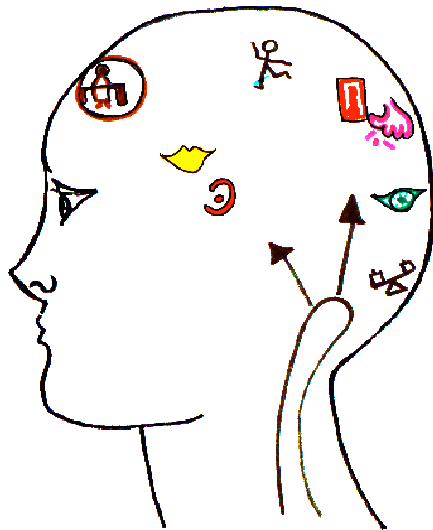
# The Works - Attention



- The "switch" of the brain (brain stem), wakes the brain up each morning.

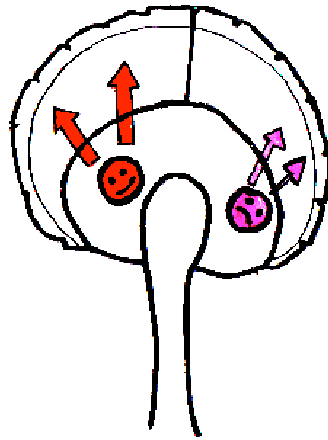
# The Works – Attention

- Brain chemicals send electrical "wakeup" messages to receiving, gathering, holding and sending stations.





# The Works - Attention



- **Activation must go through the mood part of the brain before thoughts and actions can occur.**

# The Works - Attention

- **The brains of children are more "general" than adults. They need many varied experiences so visual, auditory, speech. areas may develop**



# The Works – Attention

- Children under 5 have less effective message carrying chemicals ( esp. dopamine) than adults.



- They have more trouble focusing their attention.



# The Works - Attention

- **Top-down attention begins to appear in preschool**

# **The Works – Attention/Memory**

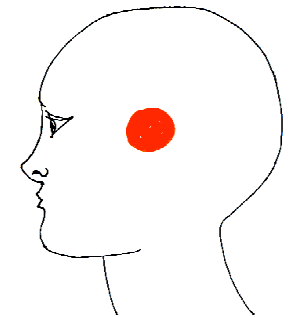
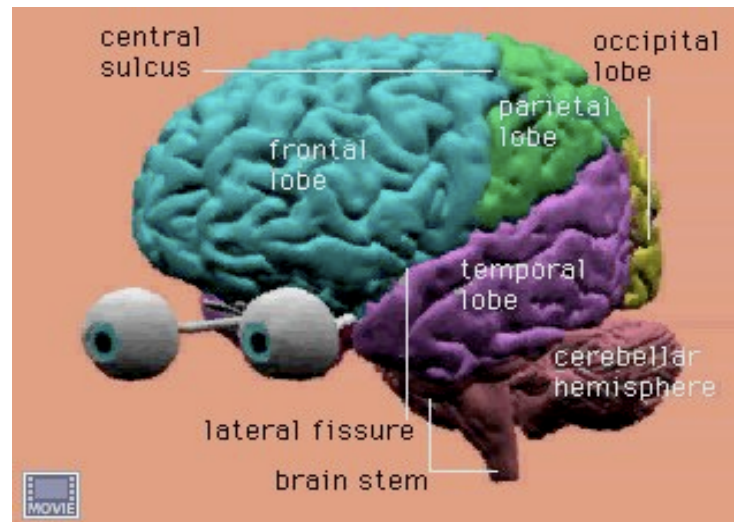
**Clear, repeated experiences help young children build memories.**



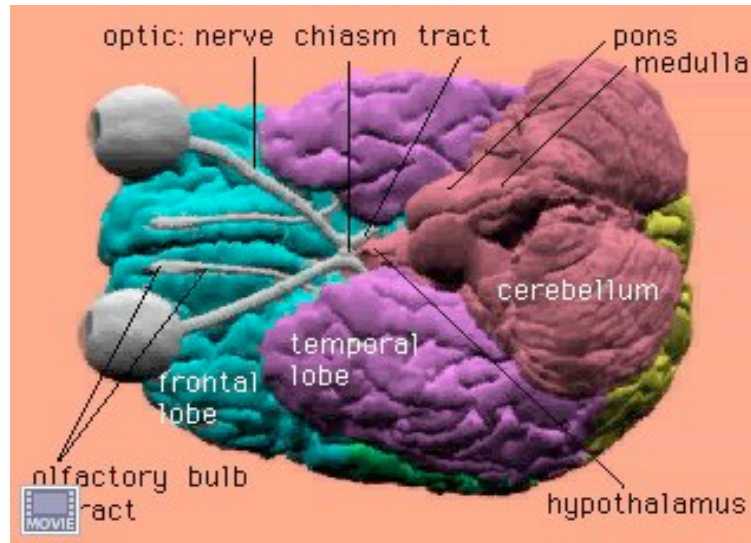
**The first, or primary areas begin to develop.**

# The Works - Memory

Motor, speech, touch, pressure temperature, and taste awareness develop.

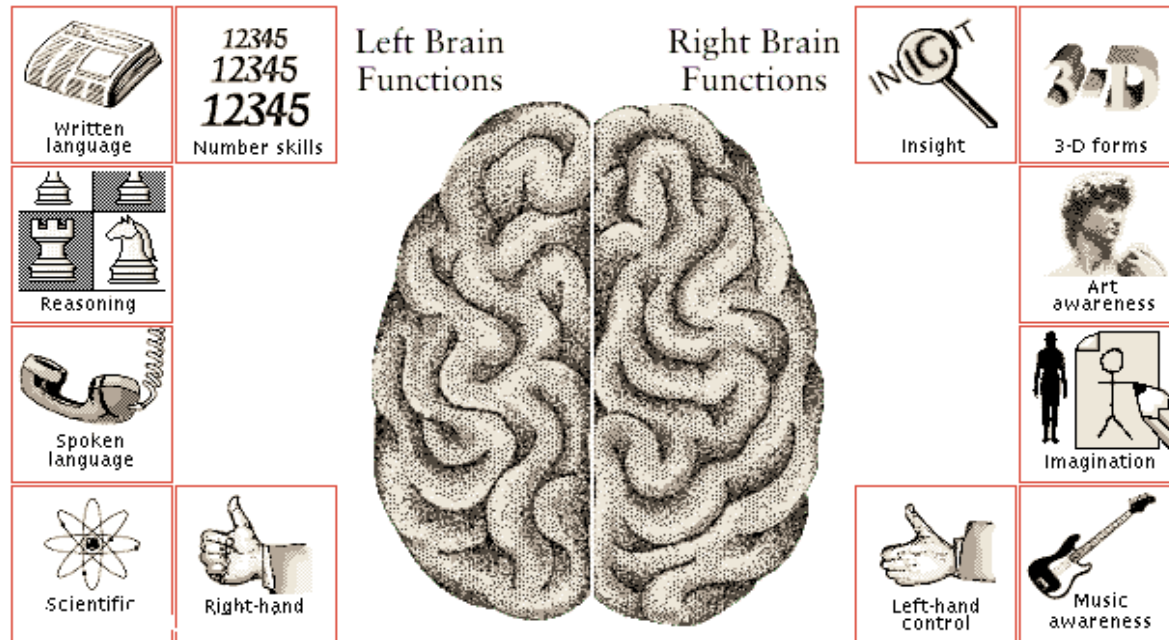


# The Works - Memory



**Visual memories begin to build and are connected with each other.**

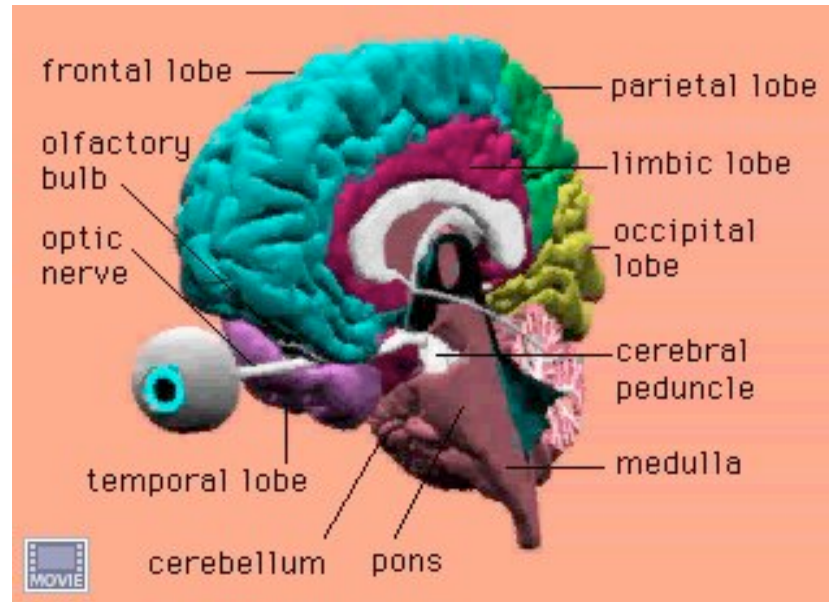
# The Works - Learning



The two sides of the brain begin sharing more memories.



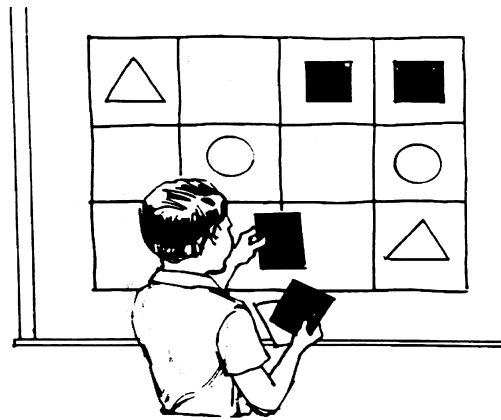
# The Works - Learning



**Visual, auditory, touch, smell, speech, pressure, taste, and mood experiences all begin sharing with each other.**

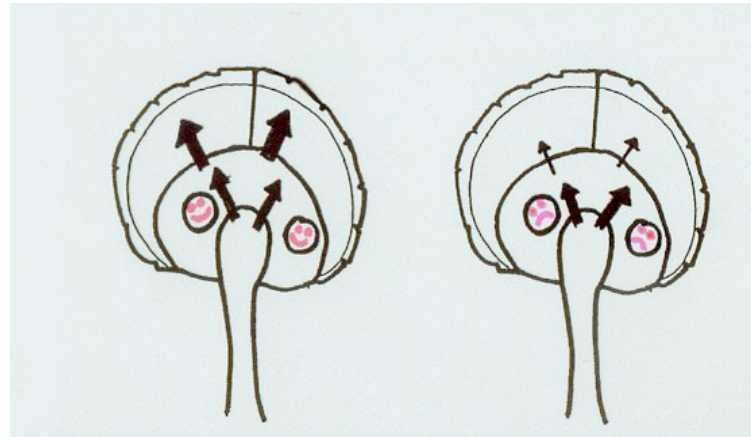
# The Works - Learning

- **With strong messages, a child can hear “square”, and say “square” when shown it tomorrow.**



# The Works – Mood

**A happy person can learn, play interact –  
better than a sad person-**



**because messages travel more easily.**



# The Works – Learning

**Multisensory learning that leads to reading writing and math occurs**

**.....if the child experiences many different things,**

**feels safe and secure .....**

**.....and there are no**

**GLITCHES.**

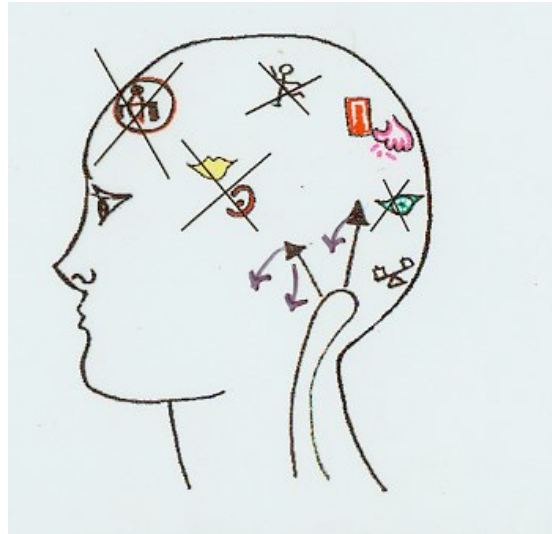


# Glitches

- **Chemical difficulties**
- **Electrical problems**
- **Brain formation**

# Glitches - Chemical Difficulties

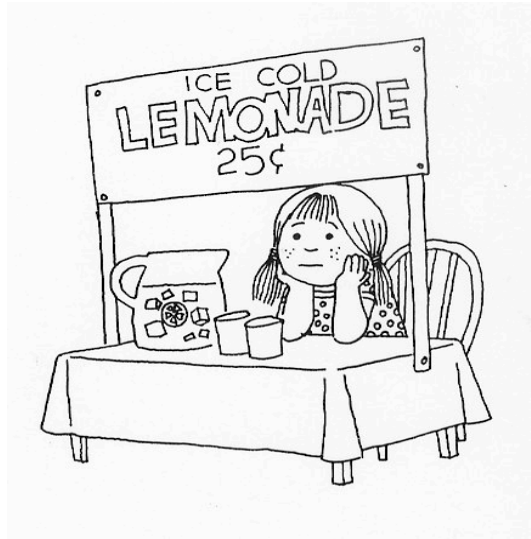
## Attention Disorders



- Brain stem not activating well
- Brain chemicals are inefficient

# Glitches - Chemical Difficulties

## Attention Disorders



- Messages are not strong enough
- Receivers can't receive.
- Unused connections are removed

# Glitches - Chemical Difficulties

## Attention Disorders

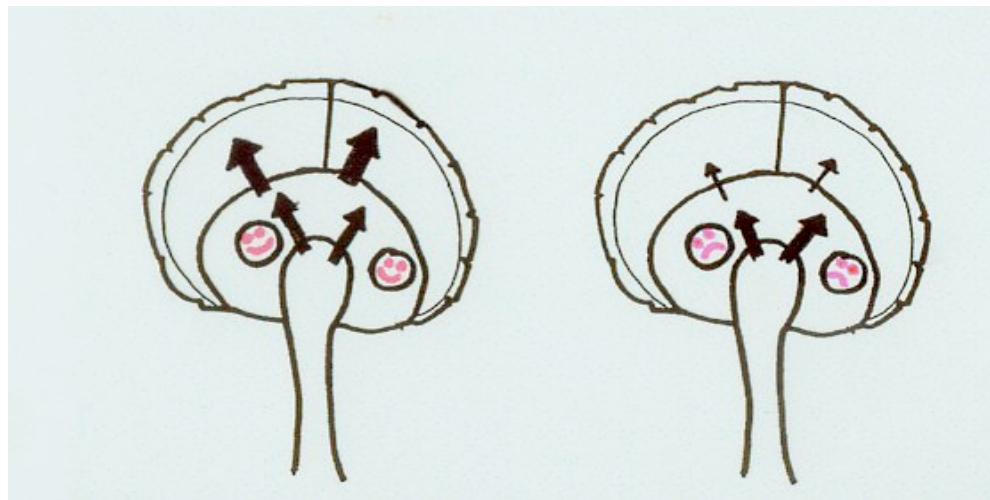


- Child or adult can't focus attention. Much information that comes in, leaks out before it can be fully stored.



# Glitches - Chemical Difficulties

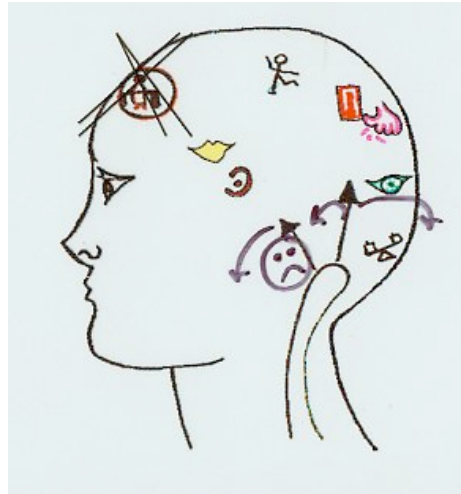
## Mood Disorders



- Brain chemicals are inefficient

# Glitches - Chemical Difficulties

## Mood Disorders

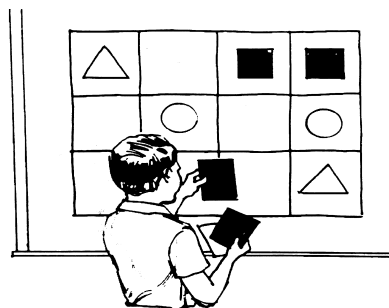


- Messages are not efficient enough to sustain mood
- Messages are not efficient enough to activate higher brain

# Glitches - Electrical Problems

## Seizure Disorders

- Remember - all brain messages are electrical

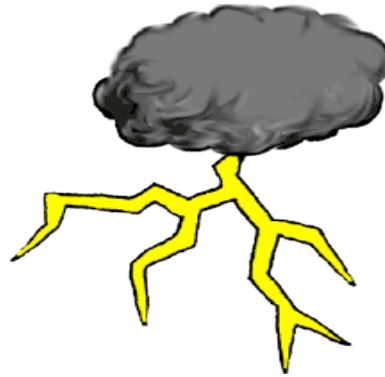


- “Square” heard and seen is sent, stored and the person can say “square” tomorrow.

# Glitches - Electrical Problems

## Seizure Disorders

- "Bad Electricity" (seizures) can scramble the stored messages.



- The person will not remember today what he knew yesterday

# Glitches - Electrical Problems

## Seizure Disorders



- **"Bad electricity" can change chemicals in that area of the brain, damage cells and interfere with connections.**



# Glitches – Brain Formation

- **Dyslexia – a language disorder**

- **It can affect**

  - Reading**

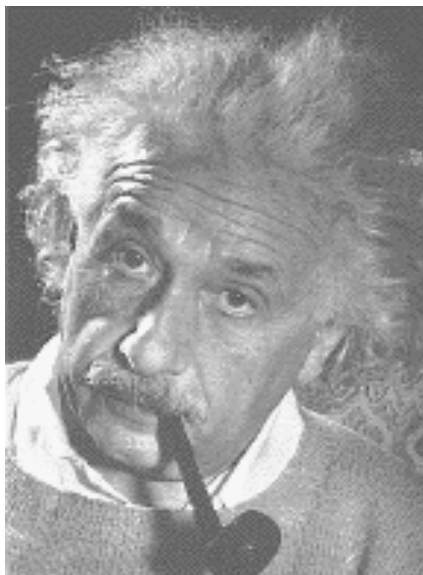
  - Spelling**

  - Writing**

  - Math**

  - Organization/Planning**

# Glitches – Brain Formation



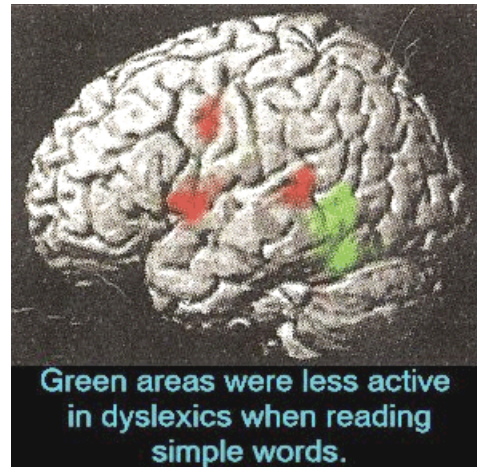
**Dyslexia**



**A person can be GIFTED and have dyslexia**

# Glitches - Brain Formation

## Dyslexia



- Inefficient activation/synchrony
- Extra neurons with no function



# Glitches - Brain Formation

## Dyslexia



- Inefficient activation/synchrony
- Bulges that contain working neurons make sounds and symbols hard to locate

# Glitches - Brain Formation

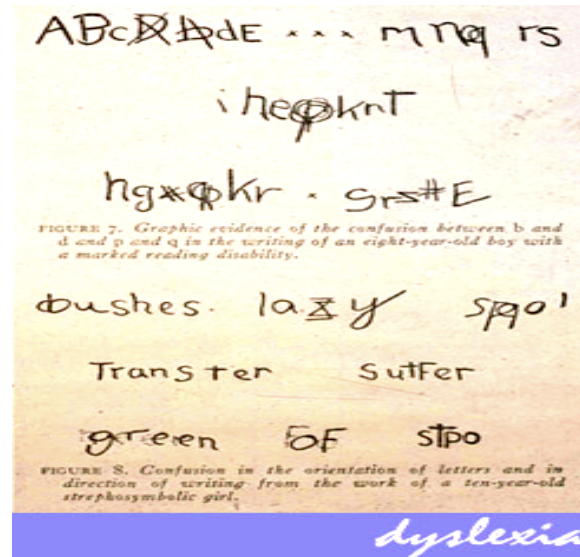
## Dyslexia



- Reading is slow and laborious.

# Glitches - Brain Formation

## Dyslexia



- Some people have trouble noticing and then "recording" the symbols they see (dyseidetic).

# Glitches - Brain Formation

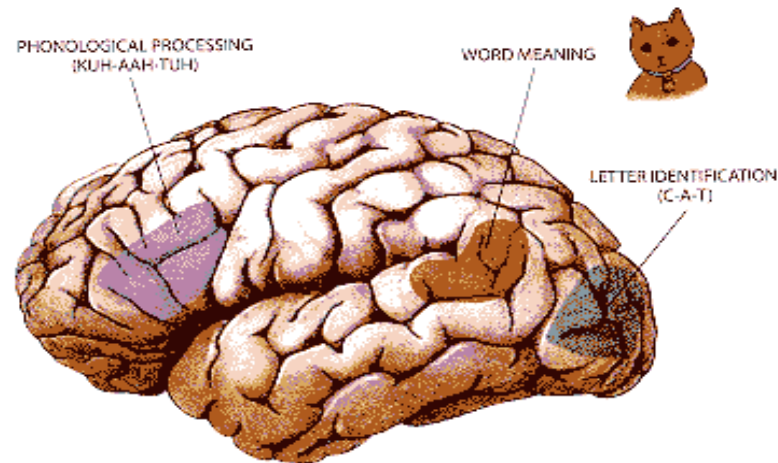
## Dyslexia



- Some people have trouble:
  - Telling one sound from another
  - Storing them in memory (dysphonetic)
  - Retrieving them

# Glitches - Brain Formation

## Dyslexia



- Some people have trouble :
  - Noticing sounds AND symbols
  - Recording them (combined)
  - Retrieving them

# Glitches - Brain Formation

## Dyslexia



- Some can record sounds AND symbols
- Can't put them into whole words (mnestic or memory).

# Glitches - Brain Formation

## Dyslexia



- Some people can record symbols, sounds and combine them
- Cannot bring the pieces together to understand what they have read (memory + synthesizing).

# Glitches - Brain Formation

## Dyslexia

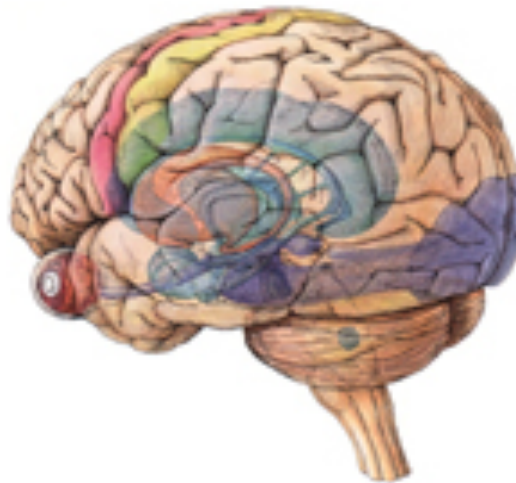


- They all need deep, repetitive sound/symbol connections
- and the GIFT OF TIME.



# Glitches - Brain Formation

## Other Learning Disabilities



- Certain brain areas are not well activated

# Glitches - Brain Formation

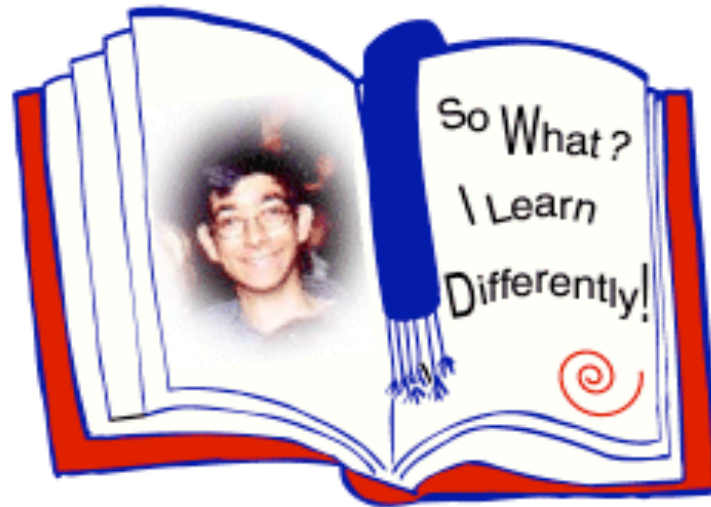
## Other Learning Disabilities



- Certain brain areas do not have enough neurons.

# Glitches - Brain Formation

## Other Learning Disabilities



- Learning can be quite uneven - with great strengths and comparative weaknesses.

# Glitches - Brain Formation

## Other Learning Disabilities



- Learning can be quite uneven - often varying greatly from day to day.

# Glitches - Brain Formation

## Other Learning Disabilities

- The person is often perceived as a person who:
  - is "lazy"
  - "does the things well that he likes to do"
  - should just "try harder"



# Glitches - Brain Formation

## Other Learning Disabilities



- Many people with ADD also have Learning Disabilities
- Many with Learning Disabilities have ADD.



# Glitches - Brain Formation

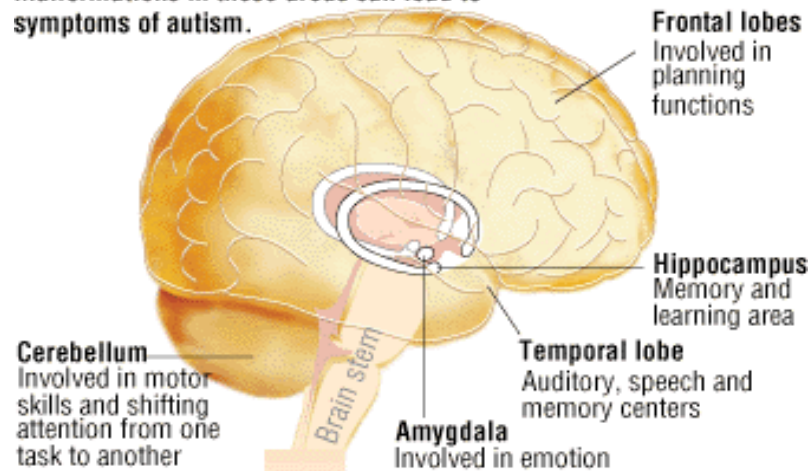
## Other Learning Disabilities

- A person can have learning problems that disable him and still have standard test scores in the "average range".
- The law has drawn a line to determine the people with severe disabilities for whom tax dollars will support extra help.
- If a child does not meet the "legal" definition for learning disabilities, she may still have disabilities interfering with her learning.

# Glitches - Brain Formation

## Autism/Pervasive Disorders

Many children with autism have anomalies in some of the brain structures shown below. Malformations in these areas can lead to symptoms of autism.



- Some brain areas are smaller than normal causing problems "gathering" sensory impressions



# Glitches - Brain Formation

## Autism/Pervasive Disorders

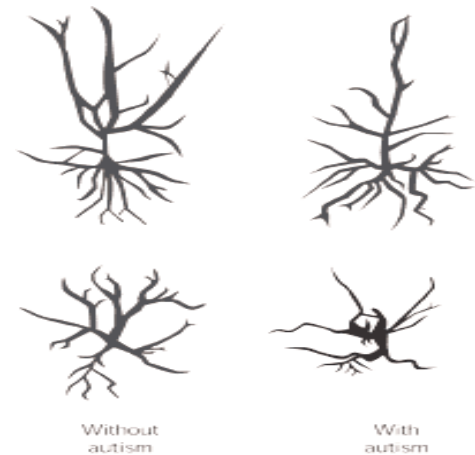
- **Chemicals are often inefficient**
  - **Affecting attention**
  - **Affecting mood**
  - **Affecting learning**



# Glitches - Brain Formation

## Autism/Pervasive Disorders

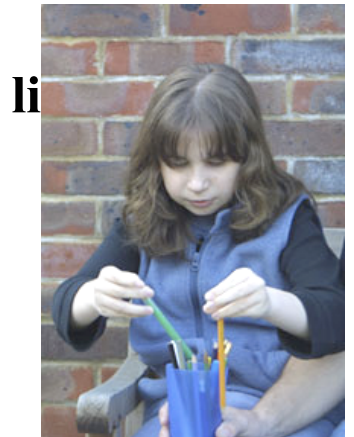
- People often have trouble:
  - **Processing new information**
  - **Scanning an area to focus on the important elements**
  - **With pieces of information. Need the "whole" picture**



# Glitches - Brain Formation

## Autism/Pervasive Disorders

- People often have trouble:
  - Organizing ideas and getting to the "core"
  - Remembering items in the correct sequence
  - Judging the passage of time
  - Their world is often "concrete" and



li

# Glitches - Brain Formation

## Autism/Pervasive Disorders

- People often have trouble:
  - Processing auditory information
  - Automatically understanding visual information
  - Problem solving and adaptation often difficult
  - Controlling motor and verbal responses



# Glitches - Brain Formation

## Autism/Pervasive Disorders

- The world of people is often overwhelming because of :
  - speedy verbal plus auditory
  - plus abstract presentation
  - they cannot process quickly enough to respond in an appropriate manner





# Glitches – Brain Injury

- **Stroke**
- **Illness**
- **Accident**

# Repairs

## Brain Reorganization



- Therapy can change the receivers and senders.
- Therapy/Exercise can help the person process.

# Repairs

## Brain Reorganization



- Attention can be activated through specific "attention getting" exercises.



# Repairs

## Brain Reorganization

- Memory can be enhanced through direct exercise
  - **Auditory**
  - **Visual**
  - **Tactile**



# Repairs

## Brain Reorganization



- Memory "gathering" or processing can be enhanced once attention and basic memory become stronger.

# Repairs

## Brain Reorganization



- When mood is "open" all exercises and learning become more effective

# Repairs

## Brain Reorganization

- Then.....
  - the organizing
  - planning
  - reasoning

parts of the brain can be

- better stimulated
- receive more complete images





# Repairs

## Medication - Attention

- Chemicals work more effectively to stimulate the brain

**Ritalin**

**Strattera**

**Concerta**

**Adderall**



# Repairs

## Medication - Mood

- Mood is able to remain "open" allowing stronger, global brain connections
  - ◆ Prozac
  - ◆ Paxil
  - ◆ Zoloft
  - ◆ Welbutrin
  - ◆ Buspar
  - ◆ Effexir



# Repairs

## Medication - Seizures

- Anti-seizure medication can often stop the seizures allowing appropriate connections to be made.
  - **Depakote**
  - **Tegretol**
  - **Topomax**



# Repairs

## Assistive Techniques - Attention

- Limit distractions
- Devise an attention getting cue





# Repairs

## Assistive Techniques – Attention

- Repeat directions
- Keep lessons clear and simple
- Allow extra TIME for processing
  - **Shorten assignments**
  - **Shorten tests**

# Repairs

## Assistive Techniques - Mood



*Solving the problem of dyslexia one mind at a time.*

- Self esteem grows through success
- High self esteem helps open mood

# Repairs

## Assistive Techniques - Mood



- Feed the child's strengths
- Help him manage his weaknesses

# Repairs

## Assistive Techniques - Dyslexia

- Repetitive multisensory phonemic instruction
  - **Wilson approach**
  - **Orton approach**to strengthen sound and symbol connections



# Repairs

## Assistive Techniques - Dyslexia



- Visualizing techniques so the child learns to convert pieces into wholes



# Repairs

## Assistive Techniques - Dyslexia

- Teach how to use books on tape with note taking techniques
- Then .....
- the child can academically keep up with peers
- the child does not lose precious time unlocking and trying to remember all the pieces



# Repairs

## **Assistive Techniques** for all children

- **Auditory input/output**
- **Visual input/output**
- **Visual input/Motor output**
- **Reading-** speed, accuracy, comprehension
- **Math**
- **Spelling**
- **Writing**



# Repairs

## **Assistive Techniques – Pervasive Disorders**

- **Structure**
- **Routine**
- **Concrete**
- **Whole**
- **Repetition**
- **Visual schedules**
- **Social teaching**





# Repairs

## **Assistive Techniques** for all children

- Clear, simple environment
- Mood smoothers
- Repetition
- Manipulatives
- Concrete presentation
- Multisensory presentation
- Visual plans
- Awareness of Learning Styles



# Repairs

## Assistive Techniques for all children

- Large print
- Tape recorders
- Computer for special software:
  - **Eye Q**
  - **Motorvator**
  - **Brain Builder**
  - **Eye Spy**
  - **Inspiration**
  - **Co-Writer**
  - **Alphasmart**

**Understand me**



**help me to be  
all that I can be**