

Beyond Poverty: Brain-Inspired Ways to Understand and Respond to Poverty



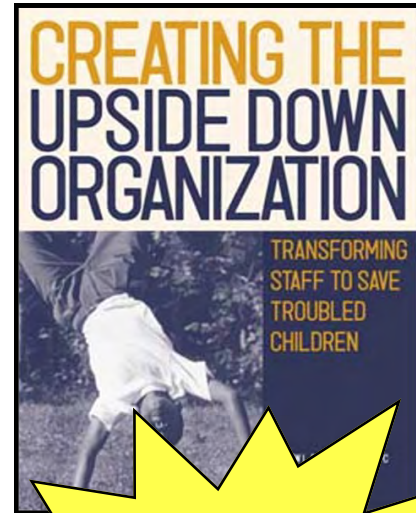
PARTICIPANT WORKBOOK

2013 CASA Conference
APRIL 7 & 8, 2013

Frank Kros, MSW, JD
The Upside Down Organization • www.upsidedownorganization.org
410-444-5415

What's Different About The Upside Down Organization?

- A unique learning organization to “Help Adults Help Kids.”
- Nonprofit. Proceeds go to kids at The Children's Guild.
- Applied Research. We are operating schools, group homes, foster care, mental health and after-school programs!
- Word of Mouth Marketing. Our participants “spread the word.”



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About Your Presenter

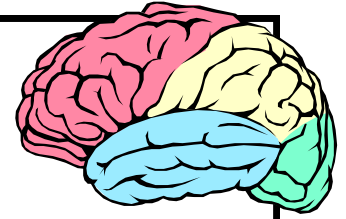


Frank Kros, MSW, JD, is a career child advocate, who has served as a childcare worker, child abuse investigator, children's home administrator, consultant, college professor, attorney, writer and speaker. Certified in applied educational neuroscience, Frank currently serves as president of The Upside Down Organization and executive vice president of The Children's Guild.

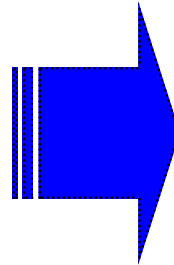
Frank presents training workshops nationwide to parents, educators, child-serving professionals and their leaders on various topics including brain-based learning aggressive and violent behaviors, attention-deficit hyperactivity disorder (ADHD), neuroscience of the teenage brain and leadership and the brain. Frank has presented his workshops at national education, social work and human services conferences, and Frank was awarded a Maryland Governor's Citation for his speaking efforts. In addition to lecturing nationwide, he co-authored two books: *Creating the Upside Down Organization: Transforming Staff to Save Troubled Children* and *The Upside Down Organization: Reinventing Group Care*. Frank earned a bachelor's degree from Creighton University, a master's degree in social work from the University of Nebraska-Omaha and a law degree, *magna cum laude*, from Notre Dame Law School.

FIVE QUESTIONS

1. What is Poverty?
2. Do Brains Change as a Result of SES Experience?
3. Do Children in Poverty Have Different Experiences than Higher SES Kids?
4. What Crises and Opportunities are Provided by These Unique Brains?
5. Solutions?



Take Home Messages:



Children of poverty have significantly different brains.



Their brains can change for the better.

QUESTION #1:

“What is POVERTY?”

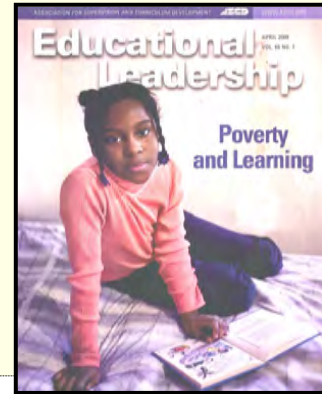
1. a.) the state of one who lacks a usual or socially acceptable amount of money or material possessions
b.) renunciation as a member of a religious order of the right as an individual to own property
2. a.) scarcity, dearth 3. a.) debility due to malnutrition b.) lack of fertility.

synonyms: poverty, indigence, penury, want, destitution mean the state of one with insufficient resources. **poverty** may cover a range from extreme want of necessities to an absence of material comforts <the extreme **poverty** of the slum dwellers>. **indigence** implies seriously straitened circumstances <the *indigence* of her years as a graduate student>. **penury** suggests a cramping or oppressive lack of money <a catastrophic illness that condemned them to years of *penury*>. **want** and **destitution** imply extreme poverty that threatens life itself through starvation or exposure <lived in a perpetual state of *want*> <the widespread *destitution* in countries beset by famine>.

POVERTY is

A chronic condition characterized by the:

- 1.) synergistic effect of multiple, adverse, economic risk factors (Atzaba-Poria et al. 2004)
- 2.) lack of access to basic human resources



POVERTY STATISTICS

- 16.4 million children under age 18 lives at or below the poverty line. (Children's Defense Fund 2012)
- That is an increase of 1.7 million in one year.
- The United States has the worst child poverty rate of the world's 25 wealthiest countries. (www.everychildmatters.org)
- Poverty in the United States is multicultural.
- Children are more likely than adults to be poor and suffer more from the deprivation of poverty.
- Poverty is the largest predictor of child abuse and neglect. (Children's Defense Fund, 2006)
- Children in poverty are more likely to suffer from mental health problems than other children. (National Center for Children in Poverty, 2011)
- Children in the lowest ranking states are:
 - **Twice** as likely to die in their first year as children in the highest ranking state.
 - **Three times** more likely to die between the ages of 1-14.
 - **Nearly three times** more likely to die between the ages of 15-19.
 - **Three times** more likely to be born to a teenage mother.
 - **Five times** more likely to have mothers who received late or no prenatal care.
 - **Three times** more likely to live in poverty.
 - **Five times** more likely to be uninsured.
 - **Eight times** more likely to be incarcerated.
 - **Thirteen times** more likely to die from abuse and neglect. (www.everychildmatters.org)



QUESTION #2:

“Can and Do Brains Change as a Result of SES Experience?”

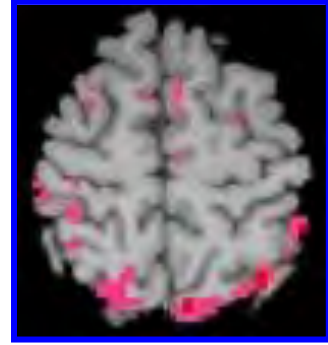
MALLEABLE MEMORIES ARE THE RULE

We know that brains **absorb positives**.

- It quickly learns brand new languages, picks up culture and the family's experiences.

But this same brain also **absorbs negatives**.

- It absorbs toxins, mixed messages, apathy, problems fear, anger, threats or violence.



Emotional Responses

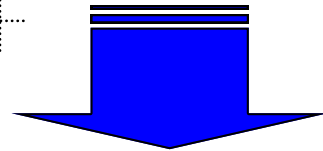
Hardwired

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Learned

- Affinity
- Forgiveness
- Empathy
- Optimism
- Compassion
- Sympathy
- Patience
- Cooperation
- Gratitude

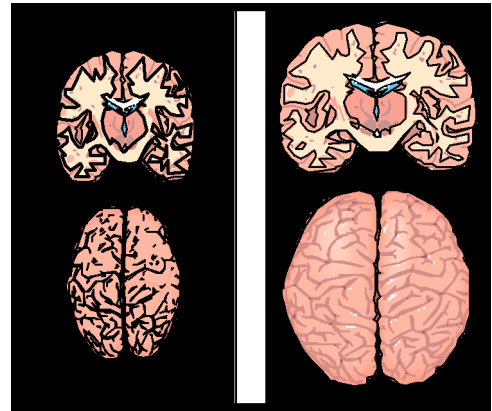
Kids “download” the negatives of chaos, disharmony, poor relationships, foul language, poor manners, and weak vocabulary just as quickly and just as automatically as they would any positive or enrichment input.



- From Ages 0-5 the World is “Downloaded” into the Brain
- Highly Immature Frontal Lobes are Unable to Delete or Reframe any Negative Input

Brains Change as a Result of Experience

Smaller Hippocampus
Smaller Corpus Callosum
Larger Amygdala
Smaller, Less Active Frontal Lobes



How might these changes impact behavior?

Neurogenesis: Birth Of New Brain Cells

Enhanced by:

- Exercise
- Complex Environments
- New Learning
- Nutrition
- Low Stress

Reduced by:

- Distress
- Inactivity
- Boredom
- Depression
- Poor Nutrition

Causes of Stress and Excess Cortisol Production

_____ logical Home _____
_____ stability Cha _____
_____ ma Drugs/Al _____
Ab _____ Aban _____
Neigh _____

NOTES ...

A large, empty grey rectangular box intended for the user to write notes.

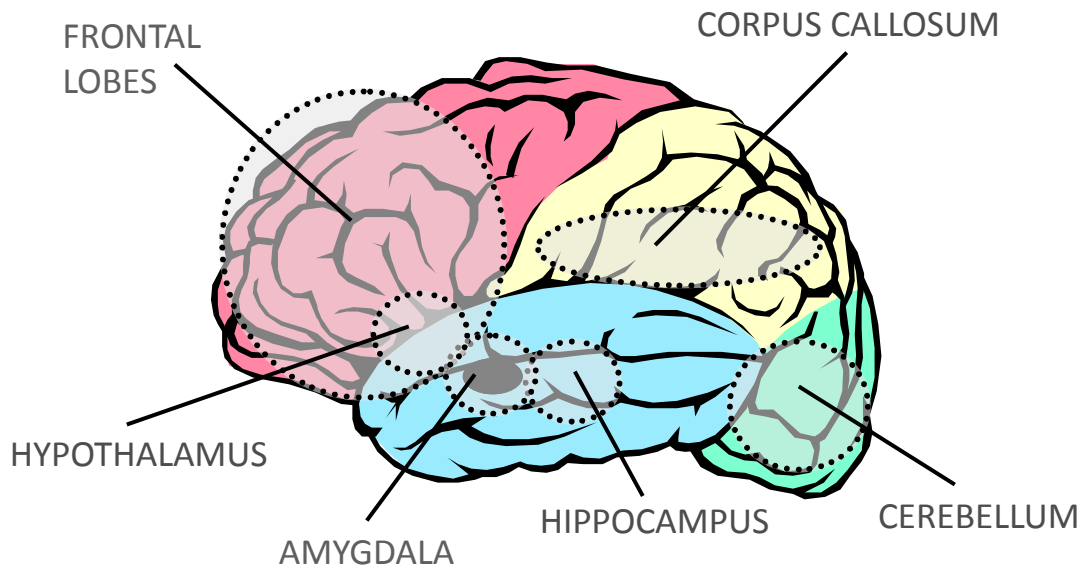
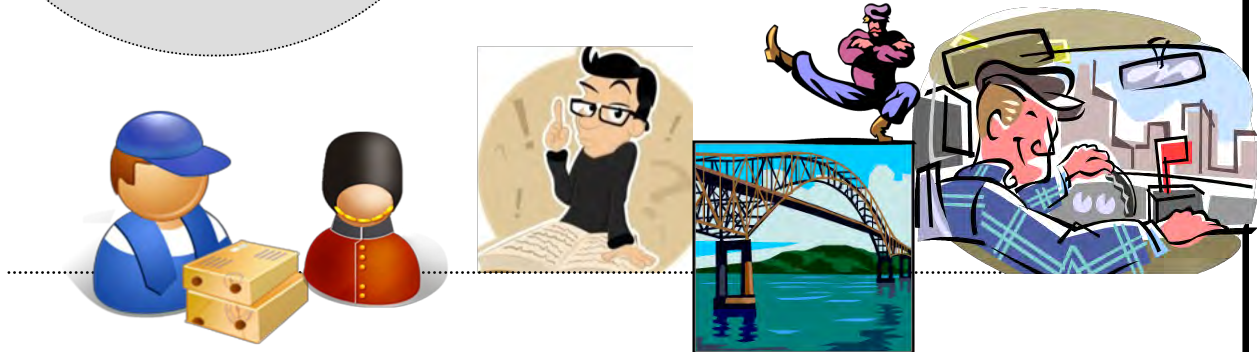
QUESTION #2A:

Brain Anatomy 101

“The Brain Made Ridiculously Simple”

“What Do You Remember About the Brain?”

- | | |
|----------------------|-----------------|
| 1. The Mail Carrier | Hippocampus |
| 2. The Palace Guard | Amygdala |
| 3. WIIFM? | Hypothalamus |
| 4. Brooklyn Bridge | Corpus Callosum |
| 5. Mover and Shaker | Cerebellum |
| 6. Learning to Drive | Frontal Lobes |



GLOSSARY

- | | |
|---|--|
| <ul style="list-style-type: none">• Hippocampus• Amygdala• Hypothalamus | <ul style="list-style-type: none">• Corpus Callosum• Cerebellum• Frontal Lobes |
|---|--|

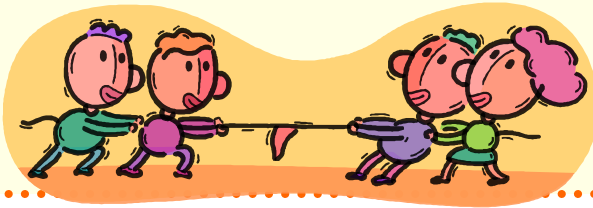
Brain Chemistry

Cortisol – “UH-OH”
Adrenaline – “YIKES!”

vs.

Serotonin – “AHH ...”
Dopamine – “YAHOO!”

These pairs do not
play well together...



TAKE NOTE



The hippocampus is the brain's memory processor and can be greatly influenced by the amygdala.

Effective frontal lobe function is critical to social, academic and vocational success.

NOTES:

Effects of Too Much Cortisol

- Brain Damage
- Poor Social Skills
- Low Verbal Skills
- Memory Impairment
- Aggression
- Impulsiveness
- Anxiety
- Dissociation



QUESTION #3

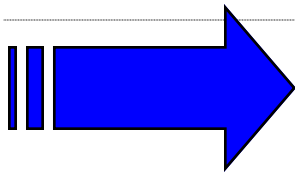
“Do Children in Poverty Have Different Experiences than Higher SES Kids?”

Contrasting Experiences ...

When compared to their middle or upper income classmates, what are children of poverty more likely to experience?

AREAS OF CONTRAST

- Emotional Support
- Cognitive Stimulation
- Stress/Distress
- Health & Safety Issues



Emotional Support

Lower-income parents are less likely to:

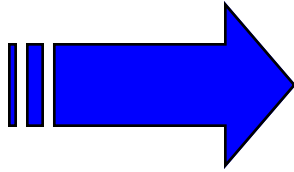
- Know their child's teachers by name.
- Know their child's best & worst subject.
- Know how their child is doing in school. (Benviste et al. 2003)

Children of poverty are more likely to:

- Hear less responsive, fewer supportive, less interactive home conversations. (Evans, 2004)
- Get less quality time and less total time from their parents or caregivers. (Fields and Casper 2001)

Family income level associated with parent involvement. (Lee & Bowen 2006)





Cognitive Stimulation

- Parents are **less likely (3-4X)** to begin conversation just to maintain social contact or build vocabulary. (Hart & Risley 1995)
- Kids in poverty watch more TV and have less access to books and computers (Evans, 2004)
- Children hear very **different vocabulary**; fewer words and less of the complex ones. (Hoff 2003)



EXTRAs for Learning

Poor families cannot afford:

- quality child care
- stimulating toys
- recreational books
- team uniform costs
- school supplies
- scouts or camp
- private music/dance lessons

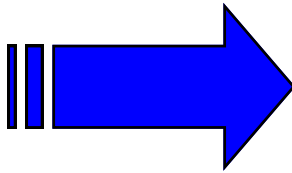
(Posner & Vandell, 1999; Sherman, 1994)

TALKING To Your Children: How Much Does It Matter?



Vocabulary is Critical to Children!

NOTES



Stress/Distress

INSTABILITY + STRESSORS

Children in poor families:

- move twice as often
- get evicted 5X as much (Federman, et al. 1996)
- develop fewer social ties
- experience more chaotic households and separation from family (Evans, 2004)
- parents lose their jobs more
- worry about money more (McLoyd, 1990)



Chronic stress is known as **DISTRESS**

Poor children are exposed to more stressors, more intense stressors, longer lasting stressors and have fewer coping skills than their higher SES counterparts. (Evans 2007)

Social Instability Effects



Study had 3 groups of mice:

- Remained in home cage
- 12 hrs. daily of restraint stress
- social reorganization
- All infected with respiratory virus

Match the 3 groups above with their 30-day mortality rates:

- a.) 8% b.) 15% c.) 70%

(Padgett and Sheridan, 1999)

Stress, Violence and Distress

- Poverty is associated with higher rates of school violence (Evans, 2004)
- Poor children are more likely to experience violent crime (KidsCount 2006)
- Household income is inversely related to exposure to family violence. (Emery & Laumann-Billings, 1998)
- Domestic violence is associated with lower IQ in young children. (Koenen et al. 2003)

DISTRESS Affects NEURONS



Dendrites taken from rat PFC show effects of distress.

How much (time) exposure to distress would you predict it would take for neurons to wither as shown?

- 2 hrs./day for 2 months
- 30 min./day for 7 wks
- 1 hr./day for 10 weeks
- 10 min./day for 5 days

(Brown et al. 2005)



Leisure De-Stressing

Lower SES families are less likely to have opportunities to de-stress such as:

1. longer vacations, fun experiences
2. restaurant meals, catering, splurges
massage, spa therapy, Jacuzzi

Effects of Chronic Stress

Stress Dysregulation
(Evans 2007)

Emotional problems
(Burgess et al., 1995)

Lowers IQ, reading scores
(Delaney-Black, et al. 2002)

Memory loss
(Lupien, et al. 2001)

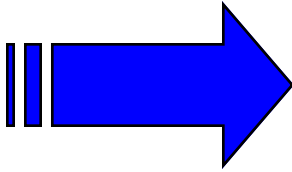
Shortens dendrites
(Cook and Wellman, 2004),
(Brown, et al. 2005)

Neuron death
(De Bellis, et al., 2001)

Inappropriate attachments
(Schore, A. 2002)

notes





Health and Safety Issues

More Toxic Exposure

Lead

- Poor children are twice as likely to have levels of lead in their blood (NCCP 2011)

Poison

- More than 1/4 of poor children live with someone that smokes everyday. (NCCP 2011)

Hazards

- Greater exposure to environmental hazards (cleaners, tobacco, paint, drugs, smog, etc.). (Suk, et al. 2003)

Dangerous Address



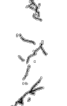





- Live on or near toxic waste sites. (Brody et al. 1993)

Air Quality


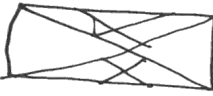
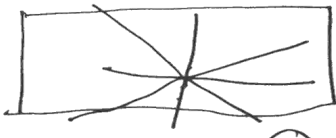
- Live in areas that did not meet National Ambient Air Quality Standards. (EPA 2000)

Pesticide Exposure

- Have more exposure to pesticides (negative synergistic affects when combined with stress). (Moses et al. 1993) / (Relyea, 2004)

FOOTHILLS		VALLEY	
			
54 mos female	55 mos female	54 mos female	53 mos female
5 year olds			
FOOTHILLS		VALLEY	
			
60 mos female	71 mos male	71 mos female	71 mos male

Drawings on the left, healthy brain.
Drawings on the right ... same age plus exposure to local pesticides.

A		Drawings by a 4th grade student of poverty: A - Clock B - Flag C - Flag
B		
C		

Safety Issues

Traffic

- Get exposure to 50% more street crossings with a 6X greater risk in pedestrian accidents. (McPherson et al. 1998)

Peers

- Have more contact with aggressive peers. (Sinclair et al., 1994)

Impact?

- Dysregulation of stress response system (bad for health). (Evans 2007)

Health and Safety Issues

Families from poverty are more likely than non poor families to live in homes with:

- non-working water heater (2.5X)
- non-working toilet (2.5X)
- rats, mice, or roaches (3X)
- more than one person per bedroom (U.S. Bureau of the Census, 2000)
- exposed household wiring (3X) (Scott and Munson, 1994)

VULNERABILITY

Children of poverty are far less likely to get needed medical care for:

- Falls or head injuries
- Physical impairments
- Behavioral disorders
- Mental illness
- Depression



Health Risks

Compared to their non-poor peers, children of poverty have ...

- 1 in 50 infants in U.S are victims of nonfatal child neglect or abuse
 - 87% involved neglect (CDC, 2008)
- Increased pre and post-natal mortality rates
- Greater risk of injuries resulting from accidents or physical abuse/neglect
- Higher risk for asthma (NCCP 2011)
- Maladaptive changes in brain chemistry (Sapolsky, 2000)



Nutrition and Poverty

- The brain is most susceptible to the effects of poor nutrition during the early years of brain development. (Georgieff and Rao 2001)
- 21% of households with children in the U.S. are food insecure sometime during the year. (NCCP 2008)



Poor Nutrition Affects Critical Brain Development

- Hippocampus (shown in red) is highly vulnerable and loses 8% in volume and 11% of its neurons with early exposure to malnutrition.
- Studies show subsequent learning and memory lapses in later years. (Pravosudov, 2005)



- Eric Jensen

Homeless School Children...



- have 4X the rate of delayed development
- are suspended 2X as others
- have 2X the % of learning disabilities
- 3X the % of homeless students have emotional and/or behavioral issues
- are 2X as likely to repeat a grade
- 40% attend 2 different schools, 28% attend in a single year

(Source: www.familyhomelessness.org)

NOTES...

RECAP:

Children of poverty have different experiences than those from higher SES.

Can you name a few?

QUESTION #4

“What Crises or Opportunities are Provided by These Unique Brains?”

The Case for Crisis

“Cumulative rather than singular exposure to a confluence of psycho-social and physical environmental risk factors is a potentially critical aspect of the environment of childhood poverty.”



The Case for Crisis: Suboptimal Brain Differences

- prefrontal/executive system
 - language system
 - insults from trauma, neglect, poor nutrition
 - overall connectivity
 - memory system
- (Noble, et al. 2005)

Good News!

Many long-term studies have shown that we can make a significant, lasting and positive impact on children of poverty.

Brains change!

What Works for Children in Poverty?

- Hope
- Accommodations
- Skill Building
- Enrichment



What Works for Children of Poverty?

HOPE ... *it's Priceless!*



The Power of Hope

- Affirmation
- Prediction of positive outcomes
- Vision of personalized, compelling possibilities by a believable authority figure

Enhanced brain chemistry supports mood, attention, cognition, memory and even neurogenesis.

THE POWER OF ACCOMMODATION

Communicate high expectations and ... make simple accommodations for:

- Transportation (tardy, absent)
- Behaviors (teach, not punish)
- Supplies (materials, space)
- Background knowledge

THE POWER OF SKILL-BUILDING

Provide what others take for granted:

- How to behave around adults
- Emotional affiliation skills
- Knowledge of the “rules of the game”
- Persistence, patience, hope and resiliency
- Understanding how money works
- Cognitive skills of survival
- Support systems to navigate life better

THE POWER OF ENRICHMENT

- Physical activity
- Challenging, and meaningful learning
- Coherent complexity
- Managed stress levels

- Managed stress levels
- Social support
- Positive nutrition
- Sufficient time

Physical Activity

Provide opportunities for voluntary, gross motor repetitive activity 4-6 days per week.

Bicycling • Swimming
Power-walking • Aerobics
School/Club Sports • Track

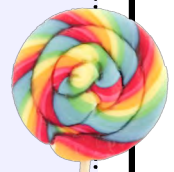


Meaningful Learning

- Use real world examples (e.g. riding a bus, not in a car)
- Draw upon what students already know how to do (value their strengths)
- Provide constant vocabulary building (use it weeks, months ahead)
- Plenty of hands-on (let them do it first, then explain)

MALNUTRITION: Hurt The Brain

- Body makes itself new every 5 months
- You are what you eat
- Body needs good nutrition to function right
- Junk food, means poor brain function



Concord Grape Juice

Blueberries Almonds and
Orange Juice Walnuts
w/Zinc Brown Rice

GREAT BRAIN FOODS

Vegetables Whole Milk
Turkey Grains
Olive Salmon Garlic
Hot
Cocoa



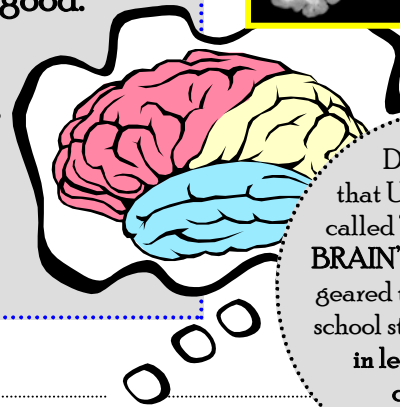
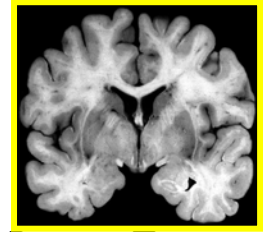
Exercise is AWESOME for the Brain!



- Thinking abilities improve
- Increases brain blood flow
- Increases brain's use of oxygen
- Protects brain against harmful things
- Brain's response to stress is improved (especially in the memory circuits)

Coherent Complexity

- Complex versus chaotic may be a fine line – pay attention to stress levels – too much or too little.
- Complexity requires the brain to shift cognitive factors – this is good.
- Students see the activity as busy, interesting, challenging, “cool.”
- Arts, science & problem solving, and exploration.



Did you know that UDO has a course called “MY AWESOME BRAIN” that is specifically geared to middle and high school students? Interested in learning more — call UDO at 410-444-5415!

Many Things **HURT** the Brain

- | | |
|---|---|
| <ul style="list-style-type: none"> • Trauma • Drugs and alcohol • Malnutrition • Chronic Stress • Infections – HIV • Environmental toxins • Oxygen deprivation | <ul style="list-style-type: none"> • Sleep deprivation • Smoking • Excessive caffeine • Too much TV • Violent video games • Dehydration • Lack of exercise |
|---|---|



Work Quickly and Be Persistent

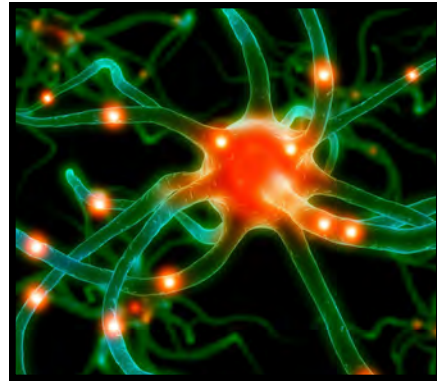
- The human brain responds well to consistent, purposeful positive changes.
- To create lasting change, it takes many hrs./day of positives to counteract the years of exposure to the home negatives.
- The more unified and persuasive the effort, the greater the results.

Many Things **HELP** the Brain

- | | |
|---|--|
| <ul style="list-style-type: none"> • Social connections • New learning • Good diet • Vitamins • Exercise | <ul style="list-style-type: none"> • Positive thinking • Gratitude • Relaxation • Happy memories • Learning music |
|---|--|

The Importance of Momentum in Your Response ...

All the body's cells respond with either Conservation or Growth strategies. But inconsistent programs and efforts means mixed messages and NO PROGRESS!



QUESTION #5

“Solutions?
Communities,
Schools &
Families!”



SOLUTION: Small Schools

- As schools become larger, the negative effects of poverty on student achievement increases.
Source: The Rural School and Community Trust. Dr. Craig Howley (Ohio University) and Dr. Robert Bickel (Marshall Univ.) 2002
- Schools that have been especially effective enable a small group of teachers and students to work almost exclusively together.
(DiFour, DuFour, Eaker & Karhanek, 2004)

SOLUTION: Off-Site Learning

- As schools become larger, the negative effects of poverty on student achievement increases.
Source: The Rural School and Community Trust. Dr. Craig Howley (Ohio University) and Dr. Robert Bickel (Marshall Univ.) 2002
- Schools that have been especially effective enable a small group of teachers and students to work almost exclusively together.
(DiFour, DuFour, Eaker & Karhanek, 2004)

SOLUTION: Social Support Services

- Library Internet
- School Facilities
- Boys & Girls Clubs
- Counseling and financial centers
- Help Hotline for community resources
- United Way
- Retired senior volunteers
- Mentors

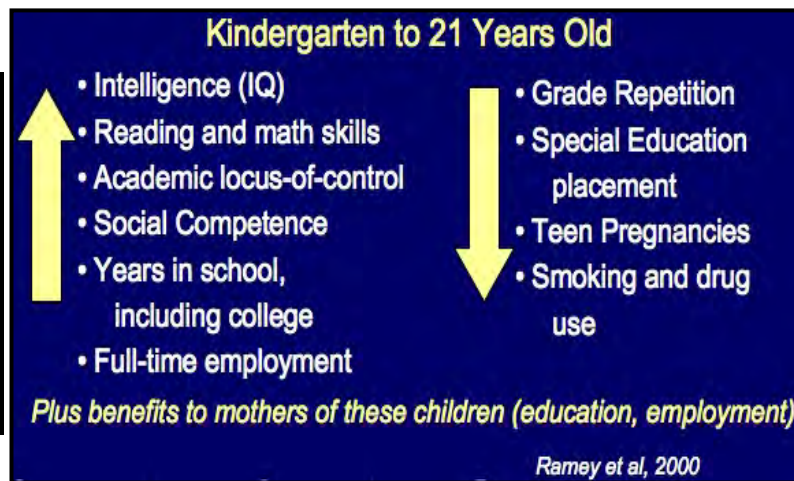
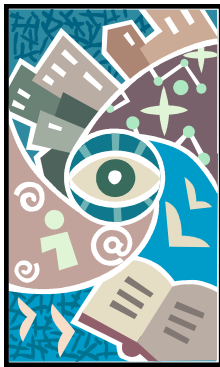
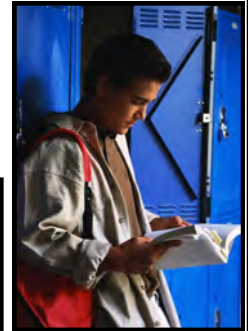
And one more solution ...

SOLUTION: Better Nutrition

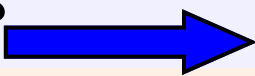
- Families need much better **awareness** of **what constitutes good nutrition**.
- They need both **resources** and the **support** to make it happen.



Evidence that Enrichment Changes Brains from Poverty



notes



To Get MIRACLES ...

1. get everyone on the same page.
2. create persistent, positive contrasting conditions.
3. do it over time.

The brain WILL change.

Resistance is futile.

TAKE HOME MESSAGES ~

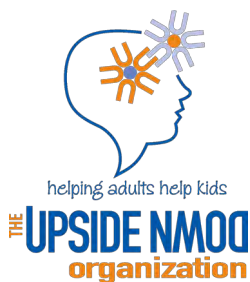
. Brains Change!

. Poor Children have Different Experiences
(= different brains)

OPPORTUNITY!

Recommended Resources:

- Enriching the Brain by E. Jensen (2006)
- The Kids Left Behind by Barr and Parrett (2007)
- A Framework for Understanding Poverty by R. Payne (2001)
- *Journal of Educational Leadership*, April 2008, Volume 65, Number 7, Poverty and Learning.



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