

Enriching The Brain: How to Maximize Every Learner's Potential

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Outline

- The Brain
- Intelligence
- Enrichment
 - What is it
 - How to implement it in the classroom

Experiences that Change the Brain

Positive

- Learning new language
- A year abroad
- Sports participation
- Skill building
- Learning to learn
- New environments
- Restoration of sense

Negative

- Trauma
- Abuse
- Neglect
- Separation from parents
- Traumatic brain injuries
- Seizures
- Physical or emotional abuse
- Malnutrition

Affect of Changes on the Brain

Positive

- Alter and improve trajectory
- Changes in social contact alter expression
- Subjective experiences, behavior, and social dynamics all influence

Negative

- Brain told to conserve, not grow
- Result is a smaller brain that cannot recover
- Child severely neglected has 75% brain weight of normal child
- Changes so drastic because developing

Are Today's Brains Different?

- YES!
- WHY?
 - Screen time
 - Domestic variances
 - Too much of a good thing
 - Quantity time
 - Domestic mobility
 - Smaller families
 - Eating changes
 - Greater stress
 - Pre(post)natal toxic exposure
 - More time on the road
 - Less playground time
 - Violence exposure

What is the Affect of Socio-Economics

- Children who live in poverty less likely to:
 - Get care for falls or head injuries, mental illness, depression, physical impairments
 - Have parents who know about services available at schools
 - Have internet access

Socioeconomics and the Affect on Education (Problems)

- Connection: poor parents less likely to know teachers name
- Daily reading: 36% of poor parents read to children as opposed to 62% in middle-upper class
- Involvement: fewer parent involved in school activities
- Teachers: less likely to have qualified teachers
- Violence: almost twice as likely to report seeing a weapon
- Disabilities: 36% of students with disabilities have incomes of \$25,000 or less

What is Intelligence

- Formal Definition: knowledge/ability to fashion a product or use a skill valued by the culture you live in
- Test given distinguish among ability, learned intelligence, applied intelligence, talent, and domain specific talent

Intelligence Tests

- G-factor: says intelligence is general capacity
 - Nature instead of nurture
- Standard: questions designed for function in real world, correlation to school success is 0.5%
- Theory of Multiple Intelligences: measures ability to solve problems by logic, verbal linguistics, bodily kinesthetic, interpersonal, spatial, naturalistic, intrapersonal intelligences, etc. means
- Triarchic: measures three aspects analytical, creative, and practical
- Emotional: standard IQ + questions about how you understand yourself and have empathy for others

Can Intelligence Be Lowered?

- Children can actually learn so little, their IQ decreases
- Environmental factors can affect IQ
 - Negative emotional climate
 - Sensory deprivation
 - High levels of pressure
 - Unchanging conditions
 - Long periods of isolation
 - Heavy, dull atmosphere
 - Passive rather than active involvement
 - Little choice in activities

Science Behind Enrichment

- What is it?
 - “positive biological response to a contrasting environment, in which measurable, synergistic, and global changes have occurred”
 - Maximization of individual potential
 - Enhancement of stimuli in the environment

Good News About Enrichment

- Global Impact
 - Changes not limited to a specific area
- Age Independent
 - Not limited to a specific age gap (sensitive times)
- Intelligence Independence
 - Works for “slow learners”, gifted students, and children with learning disabilities

Factors Contributing to Enrichment

- Physical activity
- Novel, challenging, meaningful learning
- Coherent complexity
- Managed stress levels
- Social support
- Good nutrition
- Sufficient time

Physical Activity

- Result of doing rather than observing
- Why?
 - Increased calcium levels make brain sharper
 - Improves self confidence and reduces stress and aggression
- Recommendation
 - Athletic programs that instill self-discipline, high standard, positive attitudes

Novel, Challenging, and Meaningful Learning

- Relevance is critical because meaningless tasks provide no enrichment
- Implications
 - Need meaningful context for an activity to get purposeful changes in the brain
- Recommendation
 - Curriculum should feature differentiation, pullout programs/acceleration, prescreening tests, and student choice

Coherent Complexity

- Middle ground between boredom and chaos
 - Challenging and complex environments stimulate brain connections
- Implications
 - More downside to boredom than upside to complexity
- Recommendation
 - Fun opportunities such as arts, science and problem solving, and exploration

Managed Stress Levels

- Excess stress is a destructive factor in every life situation
- Distress reduces the number of neurons in the brain
- Poor lighting is considered a stress
- Implications
 - Have to see if the environment is challenging the students or whether it is stressing them out
- Recommendation
 - Students should learn time management and study skills

Social Support

- Social conditions matter
 - Students in more social environments developed better memories
- Implications
 - Consider approaches that help students achieve positive status in a safe social group
- Recommendation
 - Mentorship, peer counseling, and clubs
 - Be pro-social! Hold assemblies and community functions that embrace the students' culture

Good Nutrition

- Nutrition has shown to make a difference in memory and learning
 - Hunger and impoverished diets are bad for health, behavior, and cognition
- Recommendation
 - Educate parents about impact of nutrition
 - Educate students about how their brain works
 - Implement and modify school food services

Sufficient Time

- New connections are formed within 15 minutes of new learning
 - Takes 1-6 hours until it is solidified
- Recommendation
 - Students need time to develop their interests, passions, and skills
 - Need homework that asks them to solidify material already learned

The Enrichment Driven Classroom

- Passion
- Classroom Instruction
- Classroom assessment
- Social Groupings

The Enrichment Driven Classroom: Passion

- Passion is the core of enrichment
- It means you will be
 - Varying facial expressions, exploding with interest and curiosity, changing your voice, selling students on the content and themselves, using student interest to make points, bringing new things from home

The Enrichment Driven Classroom: Classroom Instruction

- Utilize dimensions of differentiation
 - Content
 - Teacher
 - Classroom
 - Process
 - Product

The Enrichment Driven Classroom: Classroom Assessment

- Student content journals
- Graduated task and rubrics
- Learning contracts
- Mapping
- Performance based portfolios
- Online assessment

The Enrichment Driven Classroom: Classroom Social Groupings

- Match students to the curriculum
- Group by ability
- Utilize pullout programs if classrooms are heterogeneous

Your Turn

- Think about what you have done in the classroom. Would it be categorized as enriching?
- What are some enrichment activities you could do with your class?
- Have you tried enrichment and failed miserably? Why did this happen?