

The ADOLESCENT BRAIN

Leveraging Adolescent
Neuroscience for Effective
Dual Enrollment

Central Valley DE Convening

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Guided Pathways Implementation Team

Success Center
Foundation for California Community Colleges

Guided Pathways Implementation Team



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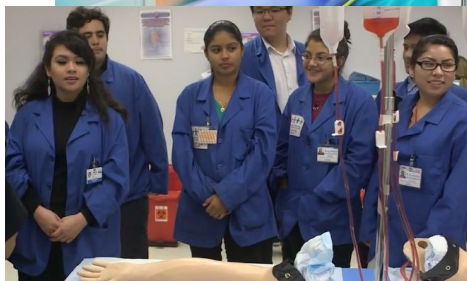
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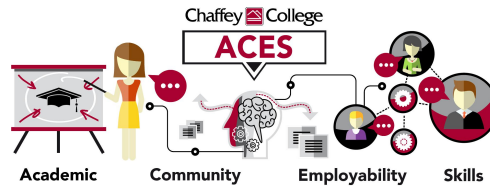
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How you would describe your adolescent self?

You can share a phrase or a few words.

Share what you are comfortable sharing.





How to Train the Teenage Brain

& Yours Too!



How to Be Memorable

1

Repetition



2

Association



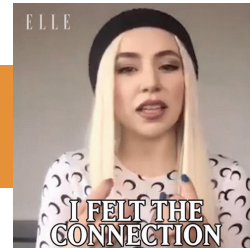
3

Novelty



4

Emotional Resonance



PAIR SHARE

Random partner

(Pairs, 2 min each)



What is one of
your most
tangible
memories from a
class in high
school?



The Adolescent Brain

Designing for Success

College Students

Dual Enrollment

14-18 year olds



General Students

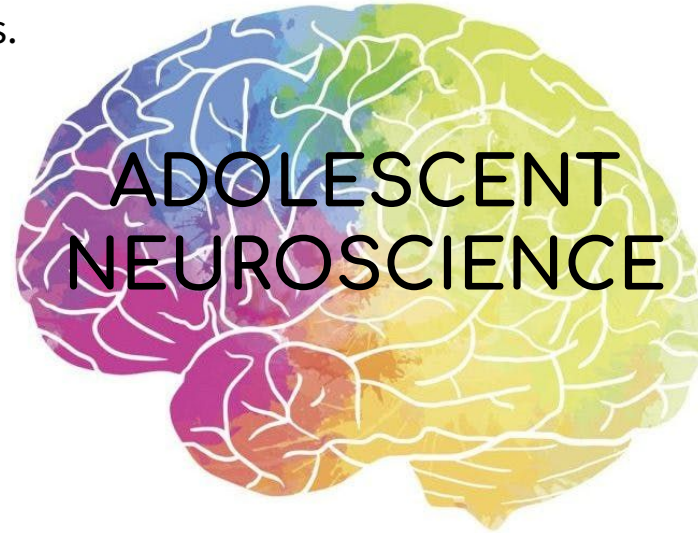
18-25+ year olds

Brain Structure & Function

How brain development affects behavior and cognitive abilities.
Decision making and impulse control, maturing through adolescence.

Risk & Resilience

Impact of stress and environmental factors on brain development impacted factors that **contribute to resilience and vulnerability.**



ADOLESCENT NEUROSCIENCE

Neuroplasticity

Brain's ability to **change & adapt** as a result of experience.

Cognitive Development

Development of **attention, memory & executive function** and neural mechanisms underlying these changes.

Social & Emotional Development

Examining how **changes in the brain contribute to social and emotional development.** Formation of identity, peer relationships, and heightened emotional intensity.

INSIDE THE TEENAGE BRAIN

Adolescents are prone to high-risk behaviour

Prefrontal Cortex

Its functions include planning and reasoning; grows till 25 years

Adults Fully developed

Teens Immature, prone to high-risk behaviour

Amygdala

Emotional core for passion, impulse, fear, aggression.

Adults Rely less on this, use prefrontal cortex more

Teens More impulsive



Parietal Lobe

Responsible for touch, sight, language; grows till early 20s

Adults Fully developed

Teens Do not process information effectively

Ventral Striatum

Reward centre, not fully developed in teens

Adults Fully developed

Teens Are more excited by reward than consequence

Hippocampus

Hub of memory and learning; grows in teens

Adults Fully functional; loses neurons with age

Teens Tremendous learning curve

The Frontal Lobe

Executive Functioning

- Planning
- Problem Solving
- Motivation
- Judgement
- Decision Making
- Impulse Control
- Social Behavior
- Personality
- Memory
- Learning
- Reward
- Attention

Pre Frontal Cortex



DID YOU KNOW?

ADOLESCENCE IS A CRITICAL WINDOW FOR LEARNING

For students to succeed in college, career, and life, they need to be able to



Master Academic Content



Collaborate



Think Critically



Develop Social & Emotional Skills



Communicate Effectively



Solve Problems

Adolescence is the time to develop these skills.

Why? Adolescents' brains are growing and changing as they prepare for adulthood.

THE ADOLESCENT BRAIN IS

Hardwiring Important Skills

Connections related to important skills become stronger, and connections to skills that are not being used are removed.

Becoming More Efficient

The brain increases speed between connections, making them more efficient.



Preparing for Change

Experiences during the adolescent years drive the brain to adapt for future needs.

Creating Connections

The brain starts creating more complex connections, making it easier to engage in advanced thinking and mental tasks.

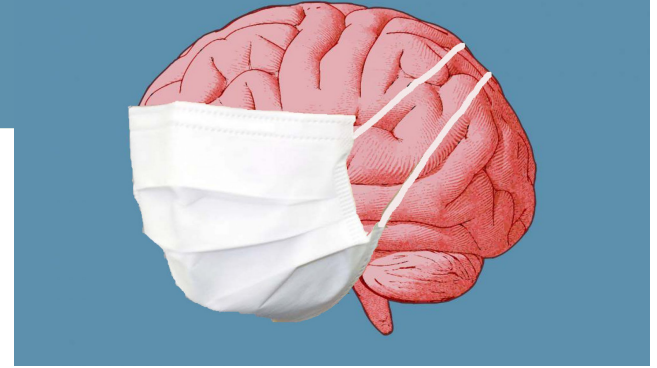


The Pandemic Impact

How trauma impacts brain development

The COVID Brain

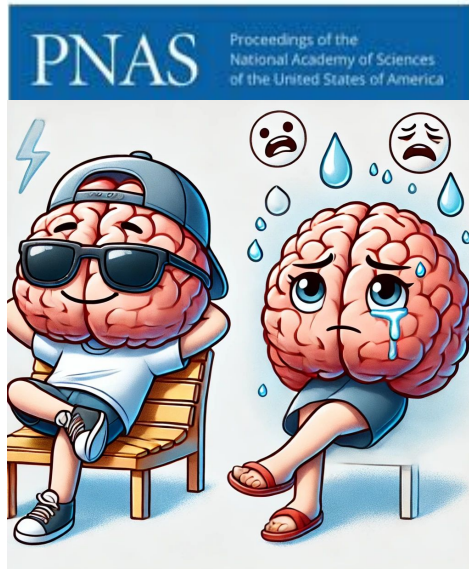
The physical effects of COVID-19 on the brain can be *significant* and *varied*, impacting various aspects of brain function.



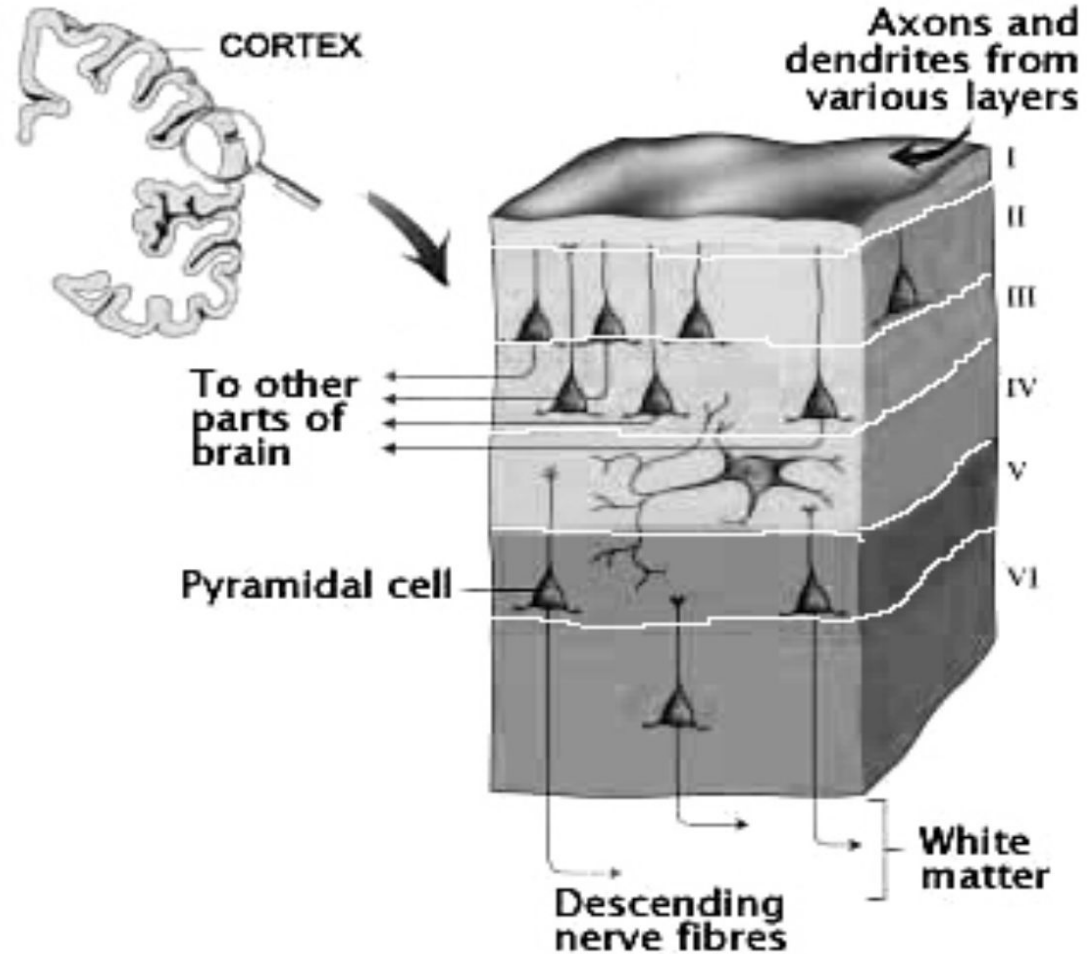
- **Neurological implications:** temporary confusion, strokes, seizures, temporary confusion, poor attention span, fatigue
- **Brain damage/changes:** decreased brain size, tissue damage, decreased grey matter leading to cognitive impairments. “*Long Covid*”

Further research is still needed to fully understand how the virus affects the brain.

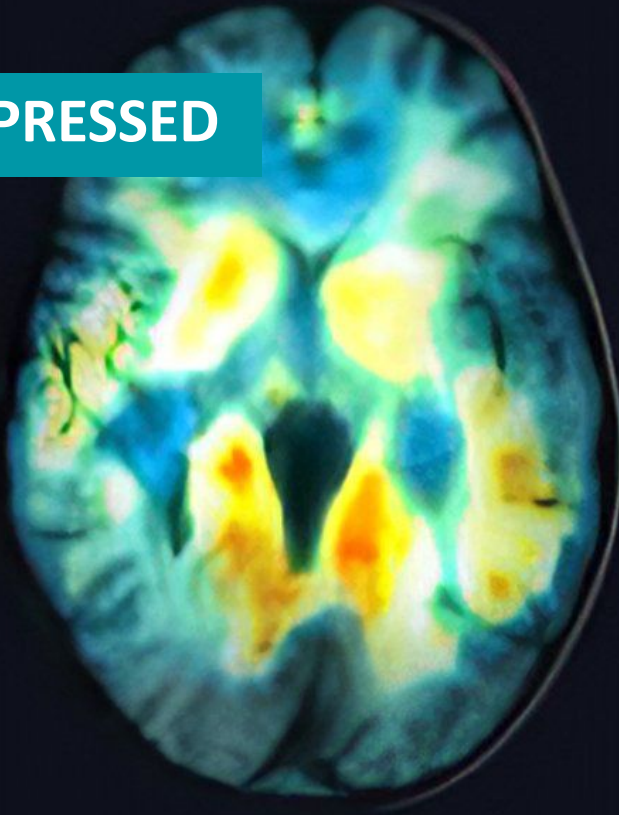
COVID-19 lockdown structure suggest pronounced in fe



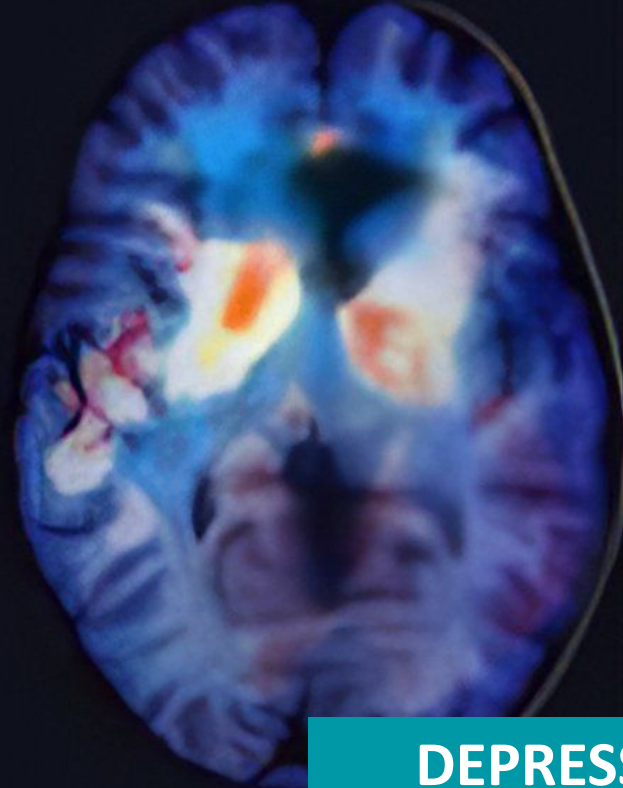
SOURCE: Corrigan, N; Rokem, A.; and Kuhl, P. 9/9/20 "COVID-19 lockdown structure suggest pronounced in females than in males" Proceedings of the National Academy of Sciences
IMAGE: Created by Leslie Valmonte using ChatGPT.



NOT DEPRESSED



DEPRESSED



Impacts of the Pandemic

ONLINE LEARNING

Changes in behaviors with the internet, disturbance of cognitive development, and **negative effects on learning**

Difficulties adapting to online learning affected their cognitive development & social interactions

SOCIAL & EMOTIONAL DEVELOPMENT

Negatively affected mental well-being and emotions among teenagers compared to older age cohorts

While experiencing tension & negative feelings, adolescents also engaged in more online social interactions with **positive media experiences**

EDUCATIONAL INEQUALITY

Widened educational inequality; declining test scores, widening achievement gaps, & disparities in access to online learning resources.

Changes in enrollment, instructional time, modalities, & parental constraints contributed to **learning losses** among vulnerable children.

KEY TAKEAWAYS

- **Adolescent experiences shape brain development & behavior**
- We must **Lead with the Heart, Build from the Brain:** Understanding the adolescent brain can help in developing interventions and supports that promote healthy development and address mental health challenges common in this age group.



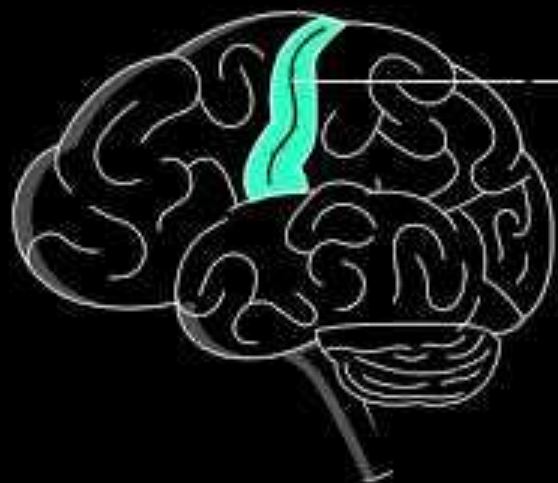
Breakout

Random breakouts

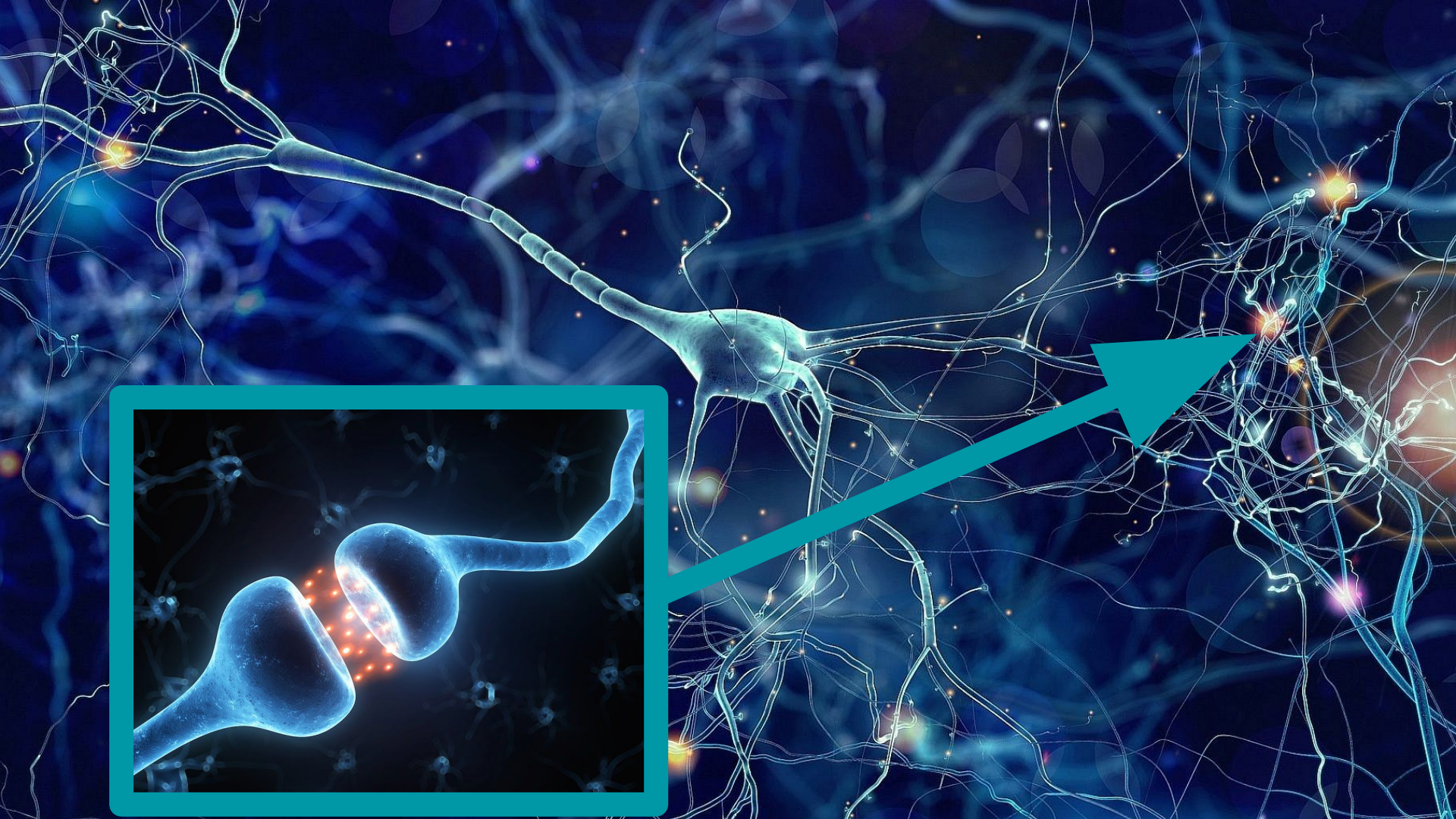
(4 per group, 6 minutes)



What have you noticed about your brain post pandemic?



**NEURAL
PATHWAY.**





Instructional Design

Lessons in Teaching & Learning

Engaging the Adolescent Brain

Practice Problem Solving

Incorporate Physical Activities

Decision Making Opportunities

Demonstrate with Models

Opportunities to “Fail Forward”

Experiential Learning



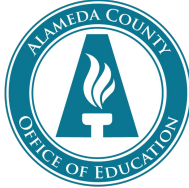
Engaging the PreFrontal Cortex

- Choose Groups
- Choose Topics
- Decide Strategy
- Offer Guidelines/Rubrics
- Encourage Creativity
- Diversify methods of demonstrating understanding
- Encourage Questions
- Recognize Emotion
- Nurture Risk Taking



**Decision Making
Opportunities**

EQUITY ROOTED Dual Enrollment



Restoring Our Communities (ROC)

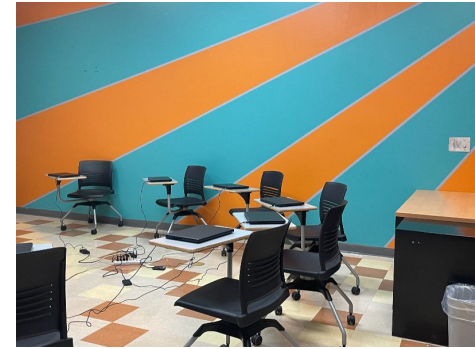
PLANNING TEAM

- 1 College Coordinator
- 2 College Counselors
- 2 College Instructors
- 1 College District Administrator
- 1 COE Administrator
- 1 High School Administrator
- 1 Probation Representative
- 1 Technical Assistance Provider


APPLICATION PROCESS

After a very challenging hour, we pivoted.

- Student data collected on paper
- CCCApply completed offsite
- Personal emails generated for all students & physical address for students was the site
- Concurrent enrollment forms



PROGRAM DETAILS

 Computer Literacy Class

- 10** Weeks
- 20** Classes
- 2** 90 Minute Classes per Week

WORKSHOPS OFFERED

 African-American Studies

 Counseling

INSTRUCTOR

- Recruited instructors with specific interest in serving these students
- Identified early & played key role in planning
- Routine visits to familiarize themselves with facility

Centering Adolescent Brain Development

- **HIGH SCHOOL** - Health focused program (Career Technical Education Pathway - CTE)
- **INSTRUCTOR** - CTE qualified for HS, Min Quals for Medical Sciences
- **COLLEGE** - Merritt College, quick implementation
- **COURSE** - Medical Assistant Certificate, 2 courses, 5 units each

Instructor part of the HS and CC community →
understands student experience as a whole

—
Interwoven goals of HS pathway and CC course

—
Credentialed Teacher + Content Expert

—
Routine feedback & instructor accessibility





1995
TO
NOW

NATIONAL
EQUITY
PROJECT

Taking Action

NEP's SCARF Framework
(Adapted from David Rock)



SCARF Framework

A Brain-based Model to Understand How We Relate/React to Others



SOURCE: Adapted from Dr. David Rock (2008) "SCARF: A brain-based model for collaborating with and influencing others." NeuroLeadership Journal.



S.C.A.R.F.

What It Sounds Like to You

Domain of Social Need	Definition	Question (Threat)	Expression (Reward)
Status 	How "important" you feel in relation to others	Am I good enough to be in this group? Will I lose my influence, job, team, etc.?	I am valuable!
Certainty 	How clear you are on things and your ability to predict the future	What exactly does that mean for me and my team?	I know where I stand!
Autonomy 	Your sense of control over events or outcome of a situation.	Do I lose the amount of control I have over what I do?	I have a choice!

S.C.A.R.F.

What It Sounds Like to You

Domain of Social Need	Definition	Question (Threat)	Expression (Reward)
<p>Relatedness</p> 	<p>How connected and secure you feel with another person</p>	<p>Will I be an outsider? Does my role change in this group?</p>	<p>I belong. I am safe!</p>
<p>Fairness</p> 	<p>Your perception of how just and non-biased things are</p>	<p>How is that supposed to be fair?</p>	<p>I know what to do!</p>

S.C.A.R.F.

What You Can Do for OTHERS

Domain of Social Need	If YOU demonstrate:	By:	The OTHER PERSON may feel a sense of:
Status 	Their importance or impact	<ul style="list-style-type: none">•Asking their opinion and seeking their advice•Listening•Including, engaging and appreciating•Avoiding jargon	Pride & Recognition
Certainty 	Clarity with your intention	<ul style="list-style-type: none">•Breaking down projects into bite size pieces•Refocusing people on what is certain•Be honest about what you are uncertain about•Setting goals/expectations and sticking to them•OVER-Communicating with transparency	Comfort in knowing where they fit in
Autonomy 	That choices exist	<ul style="list-style-type: none">•Providing choices and co-deciding on tasks•Allowing team to make their own decisions•Encouraging people to solve their own problems	Freedom and hope for the future

S.C.A.R.F.

What You Can Do for OTHERS

If YOU
demonstrate:

If YOU
demonstrate:

By:

The OTHER PERSON may
feel a sense of:

Relatedness



That they are
appreciated

- Finding things you have in common
- Using a buddy system
- Getting to know what motivates them
- Encouraging everybody's input

Social connection to each
other

Fairness



Transparency
about
expectations

- Ensuring everybody has access to info
- Acknowledging emotions, showing empathy
- Understanding that "fair does not mean equal"
- Addressing behavioral issues up front

Genuine respect for you

Classroom Examples of SCARF

David Rock offers the SCARF model to explain the domains of human social experience that activate reward or threat circuitry in our brains. These domains are interrelated and are at play simultaneously. As educators, we must reduce students' experiences of threat, which interfere with their ability to reason and learn. Below are examples of teacher actions that may cause a student to experience threat in each domain, along with possible responses to minimize threat and maximize an experience of reward. Note what sounds familiar and what you question.

Domains of Human Social Experience	Teacher Action	Student Response	Possible Responses to Reduce Threat
STATUS: Sense of Being Valued	Actual or perceived differential treatment related to discipline, patterns of participation and student support	<i>"I have too far to go to be successful – it's not possible to learn this or pass this class."</i>	Involve student in goal setting, sharing the distance to the goal and a reasonable plan for how they will get there.
	Few opportunities for a student to share what is important to them in their work	<i>"The teacher doesn't believe I'm smart or that I can learn."</i>	Offer specific, actionable feedback in relation to how student did before or to common standard or goal, rather than comparison to others.
	The model of what success looks like is narrowly defined - only certain types of student work, language and action are celebrated and rewarded	<i>"You don't know me or like me, so I'm not going to learn from you."</i>	Allow regular opportunities for students to reflect on their own progress
		<i>"If I can't be good at school, I'll be good at something else." (being the clown, being tough)</i>	Ensure opportunities for all students to participate in class activities and discussion.
			Support students to take leadership roles in class

College Campus Examples of S.C.A.R.F. Model

The SCARF model, developed by David Rock, identifies five key domains that influence social behavior: Status, Certainty, Autonomy, Relatedness, and Fairness. These domains either trigger threat or reward responses in the brain, impacting an individual's ability to engage, learn, and succeed. Below are examples of possible classified professionals' actions that may lead to a student experiencing threat in each of the domains, along with possible responses to minimize threat and enhance a student's sense of reward which can lead to a greater sense of well-being, positive interactions, and improved overall learning and retention.

As you read the examples below, consider what resonates with your experience and observations? What concerns or questions do you have? What can you do or say to better serve students and work more effectively with those around you?

STATUS: How "important" you feel in relation to others

College Action	What the Student May Say	Possible Responses to Reduce Threat
Financial aid staff seems to judge a student's financial situation.	"I feel like I'm being judged just because I need financial help. Why can't they just treat me like everyone else?"	Approach the conversation with empathy, acknowledging the student's efforts and focusing on supporting their educational goals without judgment.
Library staff dismisses a student's question as trivial.	"I guess my question wasn't important enough. Maybe I shouldn't bother asking next time."	Treat every question with respect, affirming the student's inquiry. Praise them for taking the initiative to seek help and guide them toward the right resources.
Campus security enforces rules in a way that feels authoritative.	"Why are they always watching me? I feel like I'm being targeted just because of how I look."	Engage students with respect and approachability. Explain rules in a way that emphasizes student safety and well-being rather than authority.
Tutoring staff focuses only on students with higher grades.	"I guess if you're not already doing well, they don't care as much about helping you."	Provide equal support to all students, regardless of their academic performance, and recognize effort and improvement, not just success.
Maintenance staff ignores student concerns about campus facilities.	"No one seems to care if things aren't working. Why should I even bother reporting anything?"	Address concerns promptly and thank students for bringing issues to attention. Ensure they feel that their input helps improve the campus experience.

The Adolescent Brain

What did you enjoy
about today's
session?

+

What are some
topics related to
today's session
that you would
like to explore
further?

+

If you have other
resources on
adolescent brain
development, you
can share it here.

+

General Feedback
from today's
session

+

Feedback

Presentation Resources

<https://tinyurl.com/AdolesBrain>



Thank you



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QUESTIONS & FOLLOW UP

Effects on Brain Development

Adolescents who experienced the COVID-19 pandemic showed **accelerated development in certain brain regions**, such as the medial prefrontal cortex (mPFC) and hippocampus, compared to before the pandemic.



Limited interactions and changes in social dynamics, may have influenced the development of social brain regions in teenagers.

