



SEMINAR NORMS



Refer to the text

Reference specific lines and page numbers.

Build the Conversation

Add on, express an alternate viewpoint, ask clarifying questions.

Step Up, Step Back

Make sure everyone gets into the discussion.

Use the Seminar Questions

But add your own too!

Culturally Responsive Teaching and The Brain

*Promoting Authentic Engagement and Rigor
Among Culturally and Linguistically Diverse
Students*

Zaretta Hammond

Foreword by Yvette Jackson

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Thousand Oaks, CA

bit technical, but it's necessary in order to establish a foundation for culturally responsive teaching. Here's an image to hold on to that might help. Think of the physical structures we are about to examine as the brain's hardware and culture as the software that programs it. Just like our computers, all brains come with a default setting that acts as its prime directive regardless of race, class, language or culture: *Avoid threats to safety at all costs and seek well-being at every opportunity.* Neuroscientists have long known that our brains are wired to keep us alive at all costs. Our deep cultural values program our brain on how to interpret the world around us—what a real threat looks like and what will bring a sense of security.

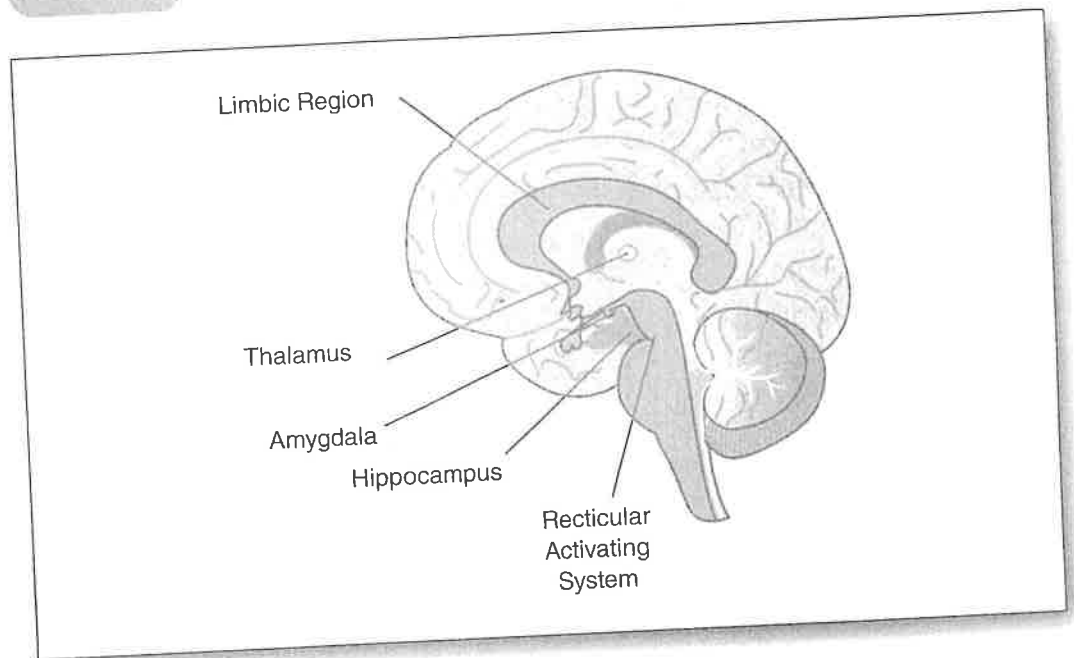
THE PHYSICAL STRUCTURES OF THE BRAIN

Let's begin with an overview of the brain's "hardware," namely its physical structures. These basic structures are important to understand before we look at culture and the brain. From the time our human ancestor was trying to avoid lions on the savanna and foraging for edible plants, the brain continued to evolve into a complex learning machine, recording and cataloguing information through experience and then changing itself so that it knew which situations to avoid and which ones to seek out quickly.

The complex architecture of our brains developed in three layers, from the bottom up, like the floors of a house. Each one is layered on top of the other, with the first layer being the oldest. Each is powerful in its own unique way. Keep in mind that these three parts of the brain do not operate independently of one another. Instead, they do a synchronized dance. They communicate by sending electromagnetic and chemical messages back and forth. In addition to their own dance, they work in unison with the body's nervous system.

The Reptilian Region

The first brain layer is the reptilian region. It is 500 million years old. It's nicknamed the "lizard brain" because it's made up of the same two structures found in the entire reptilian brain: the brainstem and the cerebellum. It doesn't think. It only reacts. It is always on, even when we are sleeping. The lizard brain allows you to smell smoke or hear a loud suspicious noise when you are asleep. It is what wakes you up. The brain stem is the structure that connects the brain to the spinal cord. Its

Figure 3.1 Cross Section of Brain with Labels

primary function is to keep our body alive. It controls automatic functions, such as breathing, heartbeat, body temperature, digestion, blood pressure, and balance. It is able to increase heartbeat, blood flow, and other automatic body functions if it gets signals that danger is near, or it can slow down responses if we are just chilling out with friends. It also houses the **reticular activating system** (RAS), a critical brain feature that's responsible for alertness and attention. Using the RAS, the brain scans our surroundings 24/7 for any *novelty* that signals important changes in the environment, any *relevant* event or information connected to one's social status, physical survival, or strong *emotions* that might signal a potential threat or reward. Getting the RAS to pay attention is critical in culturally responsive teaching. It directs the learner's attention at the beginning of a task.

The Limbic Region

Stacked right on top of the reptilian region is the limbic layer. This layer is only present in mammals. It is also called the emotional brain. This region links emotions, behavior, and cognition together (Zull, 2002). Its primary roles are to help us learn from experience, manage our emotions, and remember. The limbic brain records memories of experiences and behaviors that produced positive and negative results in the past, so a person knows what threats to avoid or what rewards to pursue. It creates our internal schema that acts as our background knowledge.

Figure 3.2 Three Critical Limbic Brain Functions

The Watcher

(Reticular Activating System)

The RAS scans our environment 24/7 for possible threats (bodily harm or humiliation) or rewards (food or friendship). It sends reports over to the amygdala.

The Guard Dog

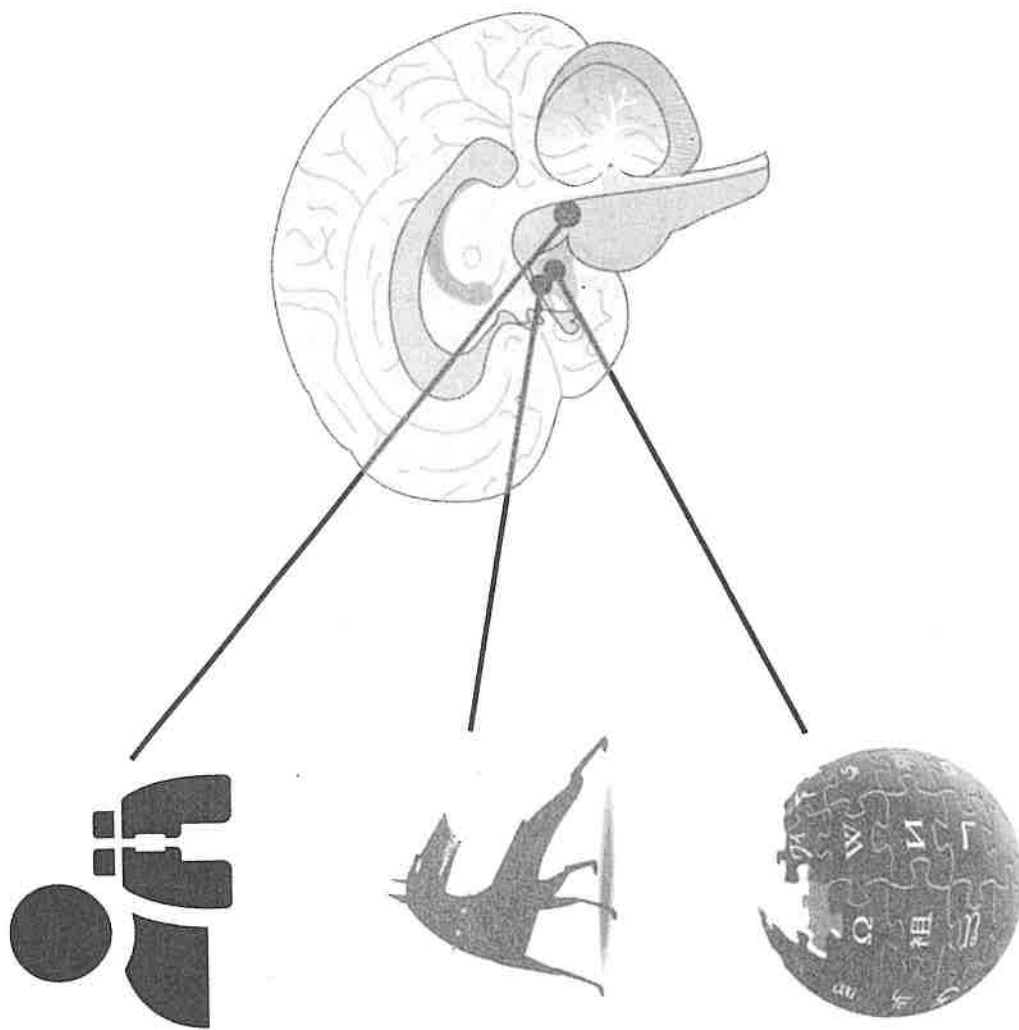
(Amygdala)

The amygdala acts as our guard dog trained to prepare the body for fight, flight, freeze, or appease when anything threatens our physical or social safety. It can act on its own if it believes we are in imminent danger.

The Wikipedia Pages

(Hippocampus)

The hippocampus is our personal Wikipedia. Here is where our background knowledge is stored. It is also the site of working memory, where information processing happens. Working memory shrinks when the amygdala is triggered.



40 • Building Awareness and Knowledge

There are three specific structures of the limbic brain that help it manage memories and emotions. Each is a key player in effective learning:

- *Thalamus*. It acts as the brain's communication dispatch hub. All incoming sensory information that the RAS lets in passes through the thalamus (except smell) and then is directed to other parts of the brain for additional processing.
- *Hippocampus*. It acts as the brain's background knowledge data bank. It houses the memory system—**short-term memory**, which holds information for as little as 5–20 seconds and the **working memory** that holds information for up to 20 minutes. Working memory is where the brain “works” to connect new information to old knowledge in order to turn facts, figures, dates, concepts, or skills into something that has meaning and relevance to the learner (Sousa, 2001; Bransford, Brown, and Cocking, 2000). This is where active learning takes place. Long-term memory is where our background knowledge is stored. Think of long-term memory as our own personal Wikipedia pages, always open for reference in order to help us make sense of what's going on around us.
- *Amygdala*. It acts as the brain's guard dog. The amygdala is an almond-shaped structure deep inside the limbic layer of the brain. It is the seat of our fear system that is involved in emotional processing. It is designed to react in less than a second at the very hint of a social or physical threat. It has the “authority” to bypass the brain's communication dispatch hub in the thalamus and send distress signals directly to the lizard brain in the form of the stress hormone **cortisol**. We call this bypass an **amygdala hijack**. When the amygdala sounds its alarm with cortisol, all other cognitive functions such as learning, problem solving, or creative thinking stop. An amygdala hijack leads to our natural “fight, flight, freeze, or appease” responses.

The Neocortex Region

The newest brain layer of the brain is only 3–4 million years old. Compared to the reptilian region, it is slow in processing information but really, really smart. It is home to our *executive function*. Executive function is the command center of the brain. It oversees our thinking and manages our working memory. It controls planning, abstract thinking, organization and self-regulation. It also houses our imagination.

In addition to executive function, the neocortex has an almost endless capacity to learn and rewire itself. For example, an infant's brain is

born capable of speaking over 3,000 human languages, but it is not born proficient in any of them. When the baby begins to hear his new home language, his brain begins to catalogue the sounds of that particular language. Over a short period of time, the baby's brain begins to hardwire itself so that it selectively strengthens the language networks that reproduce the specific sounds and grammatical patterns he hears his parents using. At the same time, his brain begins to prune the nerve connections for sounds and grammatical patterns that aren't used in his home language (Sylwester, 1995).

It is here in the neocortex that we have the chance to build our brain power, also called our intellectual capacity. The challenge is getting past the lower brain's two emotional gatekeepers: the reticular activating system (RAS) and the amygdala.

PAUSE TO PROCESS

Let's pause here for a minute to process what we learned about the brain's physical structures so far.

First, consider these questions:

- What did you read that squared with your understanding?
- What questions are going around in your head about how the brain structures interact?
- What three points stood out for you? Why?

Next, for a little practice, try describing in your own words how the three parts of the limbic brain interact or try explaining the relationship of the amygdala to the RAS. Imagine you have to explain these processes to a fifth grader. How would you describe them?

This is the copy with my notes

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The structure of the brain has evolved over time.

EVOLUTION - the brain has evolved and does evolve.

Interdependence - Each part of the brain works together.

Three parts of the brain that work together

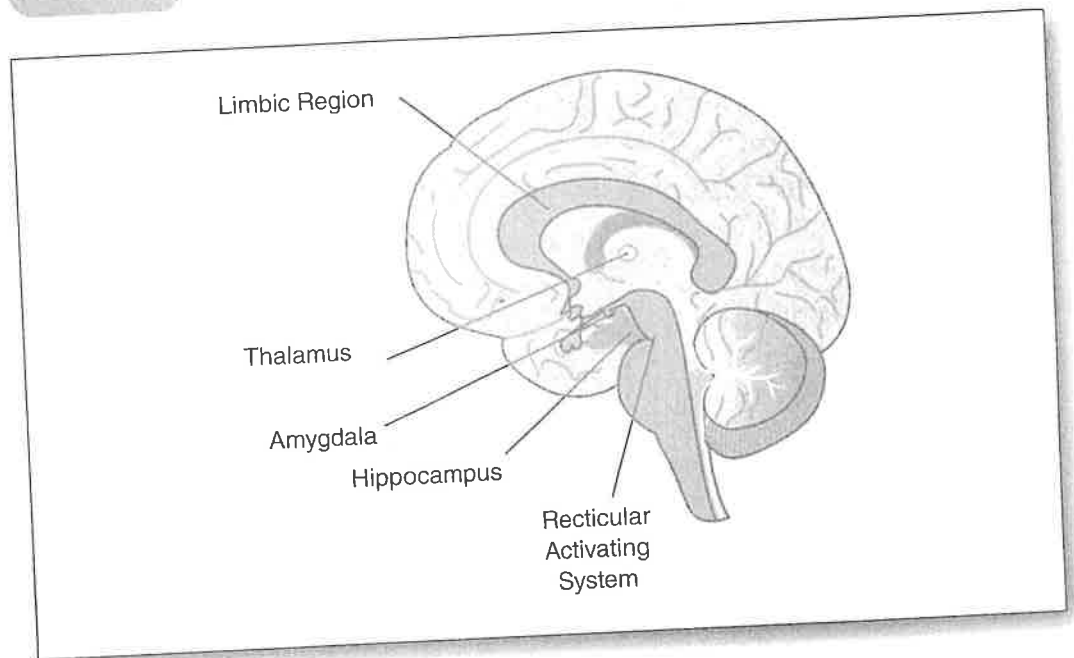
EVOLUTION - different parts of brain evolved at different times.

The Reptilian Region

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"Lizard Brain" = oldest Instincts. Just reacts Brainstem & cerebellum

Figure 3.1 Cross Section of Brain with Labels



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EVOLUTION - developed for survival

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Lizard brain does automatic things
RAS scans for dangers
Danger = novel, social status,
physical threat,
strong emotions.

Directs our attention

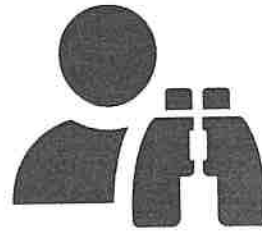
Mammals; emotional brain
Helps us learn, remember
Memory (+ & -)

Figure 3.2 Three Critical Limbic Brain Functions

All Mammals have these
(but lizards don't?)

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(Reticular Activating System)

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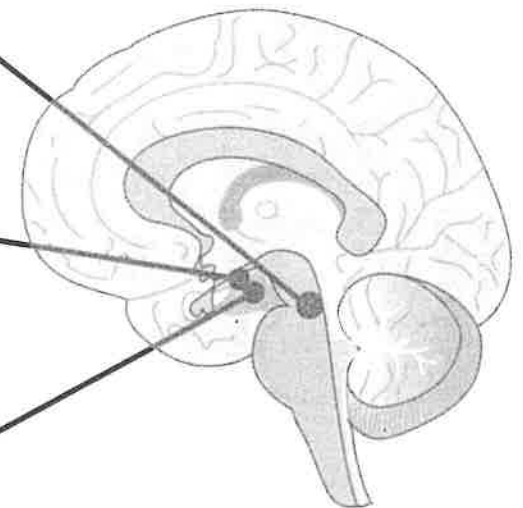
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Interesting
that threats can
be physical or
social.
(paper tigers)

40 • Building Awareness and Knowledge

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So this is how we learn.
Need to emphasize this.



Why might knowing about
amygdala hijack be helpful?
Has this ever happened to you?
What happened???

SOCIAL or Physical threat
totally shuts down our ability to
learn or think.

We are just flooded with
chemicals telling us to fight,
fly or freeze.



Do animals have executive
functioning? Is EF what
distinguishes humanity?

Slow but smart

Growth Mindset

The Neocortex Region

Ha! v

EVOLUTION - newest layer

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In addition to executive function, the neocortex has an almost endless capacity to learn and rewire itself. For example, an infant's brain is

WOW!

EVOLUTION -
Even babies
adapt;
Neuroplasticity
as a type of
evolution.

born capable of speaking over 3,000 human languages, but it is not born proficient in any of them. When the baby begins to hear his new home language, his brain begins to catalogue the sounds of that particular language. Over a short period of time, the baby's brain begins to hardwire itself so that it selectively strengthens the language networks that reproduce the specific sounds and grammatical patterns he hears his parents using. At the same time, his brain begins to prune the nerve connections for sounds and grammatical patterns that aren't used in his home language (Sylwester, 1995).

Connect this to
the pruning that
happens in
adolescence

It is here in the neocortex that we have the chance to build our brain power, also called our intellectual capacity. The challenge is getting past the lower brain's two emotional gatekeepers: the reticular activating system (RAS) and the amygdala.



One of our essential questions is about mind control. Based on what you've learned, what might that look like? Do you think it's actually possible?

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HSS Seminar Guidelines

General Rules:

- Seminars are generally worth 10 points
- 7/10 = passing, you said reasonable things and gave general evidence.
- You will not get higher than an 8/10 if you do not use specific evidence.
- You will not be able to earn a passing grade if you did not complete the reading/necessary pre-work.
(6/10 = highest if VERY impressive AND used specific evidence)
- Students who have trouble participating orally may have some scaffolding wherein in Q1 they can turn in a written reflection on the seminar for partial/passing credit (as long as they were prepared and actively engaged) but by Q4 they are expected to participate orally. Students may earn a 4/10 for actively engaging and being prepared, but not speaking (w/o a written supplement).

Daily

	Speaking	Listening	Conduct	Content
Positive Points for	Adding a clear, relevant, novel idea that advances conversation	Building off of others ideas; agreeing or dissenting with something specific; using text to support another's idea	Active engagement, tracking speaker, nodding, following in text, inviting people to speak who haven't, being a leader	Using specific examples from the text, using key words from content
Negative Points for	Talking just to talk; irrelevant, unclear ideas	Repeating someone else's ideas; hogging time; cutting people off	Head down, on phone, side conversations, being a jerk, etc	Misquoting text, saying something directly countered in text

Student name	Homework	Speaking	Listening/Conduct	Reading/Evidence
<i>Whole class in alphabetical order</i>	<i>Y/N w/o this students can only earn 6/10</i>	<i>If students say something valuable and do not detract from the rest of seminar, I generally give them 7/10</i>	<i>Generally this is where students either gain bonus points or lose points. I assume everyone is average here unless they catch my attention by either being awesome and propelling seminar or disengaging/sabotaging</i>	<i>If students say something and back it up with evidence, I generally give them an 8/10</i>

✓ = Basic (7/10)

✓ + = Excellent (10/10)

✓ - = Negative points (0-6/10 (students can earn more than one -))

Student name	Homework	Speaking	Listening	Evidence	Total ___/10
<i>Cardi B</i>	<i>Y</i>	✓	-	✓	<i>7</i>
<i>Amy B</i>	<i>N</i>		--		<i>0</i>
<i>Michelle O</i>	<i>Y</i>	✓ +	✓ ++	✓ ++	<i>12</i>
<i>Justice G</i>	<i>Y</i>				<i>4</i>
<i>Nacirema T</i>	<i>N</i>	✓ +	✓ +	✓ +	<i>6</i>

Seminar Self-Assessment

Please honestly evaluate your progress on your seminar preparation and participation. For each “Criteria for Success”, **underline** the parts that you think you did well on and **○circle** the parts where you think you still have room for improvement.

Then, write an overall evaluation for yourself for this seminar and a goal for yourself for our next seminar.

Needs Work	Some, Satisfactory	Often, Outstanding	Criteria for Success
			My text annotation included my reactions to and connections with the text.
			My text annotation identified questions that I was interested in exploring in seminar that were related to the major themes of this text and our study.
			My text annotation identified the main (most important) quotes and ideas of the text
			In seminar, I contributed new ideas that advanced our conversation and were interesting to me
			In seminar, I sought to understand ALL of my classmates’ perspectives by asking follow up questions, actively listening, making space for all voices, letting people finish speaking, and tracking the speaker.
			In seminar, I consistently used the text to support my own ideas and questions.
			In seminar, I built on the ideas of others by summarizing their idea, refuting or agreeing with it, and using specific evidence to back my assertion.

Overall, one thing that I did really well in this seminar is . . .

One thing that I’d like to focus on improving for our next seminar is . . .

Montessori Lesson Plan - Teen Brain Seminar & Big Ideas

School: Brookline High School	Teacher: Laura Honeywood
Subject/Topic(s): History / Humanities Seminar	
Grade Level: 10, 11, 12	Theme: Identity
<u>Curriculum Components Included:</u> <input type="checkbox"/> Project <input type="checkbox"/> Mini-Whole Grp <input type="checkbox"/> Lesson-Small Grp <input type="checkbox"/> Student engagement during lesson <input type="checkbox"/> Shelfwork <input checked="" type="checkbox"/> Rubric <input type="checkbox"/> Self-Assessment <input checked="" type="checkbox"/> Seminar/Qs <input checked="" type="checkbox"/> Interdisciplinary <input type="checkbox"/> Outside Opportunity	
<u>Seven Gateways for Adolescence addressed in this lesson:</u> <input checked="" type="checkbox"/> Deep Connection <input type="checkbox"/> Silence & Solitude <input checked="" type="checkbox"/> Meaning & Purpose <input type="checkbox"/> Joy & Delight <input type="checkbox"/> Creative <input type="checkbox"/> Transcendence <input type="checkbox"/> Initiation	

<u>Standards/Objectives:</u> DIS 1 Comes to discussions punctually and prepared, having read and researched material under study DIS 5 Actively listens to, respects and builds off of differing interests, opinions, & experiences DIS 9 Supports observations, arguments, and responses with evidence from text and experiences PSY 1 - Describes the basic workings of the brain (eg neurons, synapses, frontal lobe, amygdala, neuroplasticity, cortisol, oxytocin, serotonin, dopamine, endorphins) PSY 5 - Discuss maturational challenges in adolescence, including related family conflicts.		
<u>Materials: Teacher</u> <ul style="list-style-type: none"> • The Seven Gateways descriptions printed on 8.5 x 11 • Large Poster Paper • Markers, etc • Circle for Seminar 	<u>Materials: Student</u> <ul style="list-style-type: none"> • Notebook & Notes <ul style="list-style-type: none"> ◦ The Teenage Brain ◦ Brain Shelfwork • Annotated Hammond article 	<u>Time/Dates</u> Projected: Friday 9/17/21
<u>Facts/Skills (Prior Knowledge)</u> <ul style="list-style-type: none"> • Functions and areas of the brain; especially the amygdala, Reticular Activating System, 		<u>Concepts/Big Ideas</u> Our brain structures shape how we experience the world. We can shape our brain structures.

hippocampus, prefrontal cortex (lizard brain, mammal brain, human brain) <ul style="list-style-type: none"> • Descriptions of oxytocin, dopamine, cortisol • Descriptions of amygdala hijack, paper tigers • Changes in the teenage brain 	
<u>Lesson Relates to Theme</u> (Note: Every content lesson will not directly relate to the theme) We will talk about how our brains and our relationship to them shape our identities. We'll <i>begin</i> to explore how much of our identities are pre-determined.	
<u>Connection to Elementary Material or Lesson</u> Connection to the Seven Gateways which <i>should</i> be present in the Elementary Materials/Lessons ;-p	

Step-by-Step Procedures	
<u>Activator, 1st Period & 2nd Period Lesson - 25 minutes</u> <ol style="list-style-type: none"> 1. Give students a Gateway (in pairs) and have them <i>quickly</i> illustrate that gateway. (12 minutes) Consider: <ol style="list-style-type: none"> a. What does this mean? How would you illustrate it in images? b. Why is this important? c. What does this look like for you? What might it look like for others? d. Where are examples of where you have seen this in ACE so far? 2. Gallery Walk of images (5 minutes) 3. Awareness of Process (8 minutes) <ol style="list-style-type: none"> a. What stood out to you in the images we drew or about the Gateways themselves? b. How might these gateways connect to our theme of Identity? c. Which gateways might connect to the changes in the adolescent brain? How do these gateways connect to what we have been studying? 	
<u>2nd Period – Recognition</u> <ol style="list-style-type: none"> 1. (See above) 	<u>2nd Period – Recall/Refresh Practice</u> <ol style="list-style-type: none"> 1. Brain Match Relay - Teams race to correctly match parts of the brain / chemicals to their functions (in relay)
<u>3rd Period – Student Application</u> <ol style="list-style-type: none"> 1. Students sit in a circle with their notes. 2. Teacher reviews seminar guidelines/expectations. (Pass out Seminar Moves sheet) <ol style="list-style-type: none"> a. This is about asking and answering deep questions and listening to one another b. Goal is to learn through other people's perspectives <i>and</i> to learn more about your own. <ol style="list-style-type: none"> i. Remember to listen to understand, not to respond. 	

- c. While we will follow our curiosity, we also need to be grounding our thoughts in the research that we've done so that we don't get too abstract and disconnected. Remember to use the text and your notes to support your ideas.
 - d. Project and Review Discussion benchmarks.
 - e. Questions, additions or reservations about our guidelines?
- 3. Bridge:
 - a. For 3 minutes: Write about a time when you felt a little bit out of control - so either how you acted was different than usual or your emotions or actions sort of got away from you. What happened? What do you think about it now?
- 4. Opening:
 - a. On pg 40, Hammond describes something called the Amygdala Hijack. Has that ever happened to you? How did you handle it?
 - i. Why does it happen?
 - ii. Is there anything we can do about it?
- 5. Core Questions:
 - a. Evolution:
 - i. Hammond talks about the evolution of the brain over time. Do you think the adaptations of the brain are more helpful or harmful to us today?
 - 1. Are there any adaptations that seem outdated or more harmful than helpful?
 - 2. How are the adaptations/functions of the brain useful?
 - ii. What do you think might be the *next* adaptations of our brains??
 - 1. Presumably these readings have been about neurotypical brains. How might these functions be different in non-neurotypical folks and what should we know or be thinking about that??
 - b. Interdependence:
 - i. Hammond argues that the parts of the brain work together, saying that "they do a synchronized dance" (pg 37). Why might each part of the brain be important? How do they work together?
 - c. Mind Control:
 - i. **One of our essential questions for this cycle is about Mind Control, "Is there any way to control how we think or what we feel?". Based on your study this week, what do you think?**
 - ii. Hammond described the Neocortex Region on pg 40-41 as the newest part of the brain - what some people call "the human brain". What *is* executive functioning? Is it uniquely human?
 - 1. What does it mean to be human? Are we structurally different from other animals?
 - d. Connections:
 - i. **What seem to be the most important changes in the adolescent brain? Why?**
 - ii. **How does our brain research and the adolescent brain in particular connect to the seven gateways?**
 - iii. **How does neuroscience inform your understanding of identity?**
- 6. Closing
 - a. How can understanding the basics of neuroscience help us?
 - b. What would it be helpful to know more about? What sparked your curiosity?
- 7. Awareness of Process
 - a. What was different about this conversation than other academic conversations you've had

<ul style="list-style-type: none"> <ul style="list-style-type: none"> i. What did you like about it? ii. What was a little bit challenging b. What were the best moments? When did it seem like things were going really well? <ul style="list-style-type: none"> i. What allowed that to happen? What made it good when it was good? c. What was tricky or unpleasant about this seminar? <ul style="list-style-type: none"> i. What could/should we do next time to make this run smoother and more enjoyably ;p d. What skills are necessary for seminar and how might they be useful to you <ul style="list-style-type: none"> i. In school ii. In a job iii. In life e. What makes seminar fun? <p>8. Student self-assessment</p> <p>9. Closing / Restoring the Environment</p>		
Plan for Differentiation		
<p><u>Teaching</u></p> <ul style="list-style-type: none"> • N/A 	<p><u>Work</u></p> <ul style="list-style-type: none"> • Seminar Prep Sheets 	<p><u>Assessment</u></p> <ul style="list-style-type: none"> • Notes • Seminar prep sheet • Self-Assessment/comments • Individualized seminar goals
<p><u>Outside Support: Who, What, How</u></p> <p>In Academic Support, ask learning specialists to invite students to begin brainstorming their thoughts, participate in a practice seminar and/or complete a seminar prep sheet. Remind students to have notes.</p>		
Formal Assessments		
<p><u>Formative Assessments</u></p> <ul style="list-style-type: none"> • (previous) Shelfwork; Annotations; Short responses 		
<p><u>Summative Assessment</u></p> <ul style="list-style-type: none"> • Seminar 		

Guidelines for Participants in a Socratic Seminar

1. Refer to the text when needed during the discussion.
2. It's OK to "pass" when asked to contribute.
3. Do not stay confused; ask for clarification.
4. Stick to the point currently under discussion; make notes about ideas you want to come back to.
5. Don't raise hands; take turns speaking.
6. Listen carefully.
7. Speak up so that all can hear you.
8. Talk to each other, not just to the leader or teacher.
9. Discuss ideas rather than each other's opinions.
10. You are responsible for the seminar.

BASIC FOLLOW-UP MOVES

(as needed, after the discussion has been launched with the Opening Question)

1. Verification

- How do you know that's so?
- Where does it say that in the text?

2. Clarification

- What do you mean by ____?

3. Elaboration

- Say more about that.
- Tell us more.

4. Participation

- What do some of you others think?
- Let's hear from those of you who haven't spoken yet.

5. Variety

- What's another idea (reason; cause; interpretation)?

6. Summarizing

- Let's see where we are.

7. Re-focus

- Interesting! Let's return to the question.

COMPETENCY BASED LEARNING (HONEYWOOD)

“COMMON LITERACY BENCHMARKS”

DIS - Student can participate in Discussions

DIS 1 Comes to discussions punctually and prepared, having read and researched material under study

DIS 2/3/5 Actively listens by seeking a variety of viewpoints, listening not waiting to respond, and checking for understanding. Asks clarifying and/or probing questions respectfully. Respects and builds off of differing interests, opinions, and experiences of others

DIS 9 Supports observations, arguments, and responses with evidence from text and experiences

RAN - Student can Analyze texts

RAN 1 Reflects on the relevance of texts' themes to one's own experiences

RAN 2/3/5 Relates texts to larger themes beyond the reading (2) OR
to its history, social context, setting, and/or author's life (3) OR
to other texts, comparing and contrasting the themes (5)

Honeywood

At optimum, I
introduce
Seminar through
“Socratic
Circles”

Socratic Circles

Grading: You will be graded on:

Speaking: Making novel points and insights

Listening: Building on and referring to your classmates ideas explicitly

Conduct: Active engagement

Content: Using specific examples from the texts (group 1) or the discussion (group 2) to illustrate and support your ideas.

	Speaking	Listening	Conduct	Content
Positive Points for	Adding a new idea	Building off of others ideas; agreeing dissenting with something specific, inviting people to speak who haven't yet	Active engagement, tracking speaker, nodding, following in text, stepping up to facilitate productive engaging conversation	Using specific examples from the text, using key vocab words/content
Negative Points for	Talking just to talk	Repeating someone else's ideas; hogging time; cutting people off	Head down, on phone, side conversations, being a jerk, etc	Misquoting text, saying something directly countered in text, not reading

A map showing the eastern part of Russia and surrounding regions. The landmasses are in light gray, and the water bodies are in teal. A dashed yellow line runs vertically through the map, possibly indicating a border or a specific geographical feature.

Example of a Socratic Circles Intro Lesson

Group 1 (8 min) (Loewen): What was the most important or interesting idea in Loewen's argument?

Group 2 (4 min) (Reflection): Evaluate the first seminar, what went well? What should we focus on improving?

Group 2 (8 min) (Loewen):
Why does perspective matter in studying history?

Group 1 (4 min) (Reflection): Evaluate the second seminar, what went well? What should we focus on improving?

Agenda

□ Do Now

□ Key Terms

Socratic Circles

Preview Hmwk

Zheng Li