Frameworks for Understanding Cultural Variations in Behaviors, Beliefs, and Communication: Implications for Students from Diverse Backgrounds

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https://www.youtube.com/watch?v=JchALYBVEGw

Cultural Variations

Biological

Psychosocial

Gamma

Gamma is where salt and fresh water meet. Water is a symbol of knowledge in Yolngu philosophy, and the metaphor of the meeting of two bodies of water is a way of talking about the knowledge systems of two cultures working together.

Most psychological and biological studies are done on WEIRD people
- Western
- Educated
- Individualistic
- Rich
- Democratic

90% of peer reviewed neuroimaging studies come from studies conducted in Western countries. 95% of psychological study participants come from countries representing 12% of the world’s population.


What is Cultural Neuroscience?
- The study of how cultural values, practices and beliefs shape and are shaped by the mind, brain, and genes across multiple timescales
  - Bridges theory and methods from anthropology, psychology, neuroscience and genetics

2013 First issue of journal, Culture and the Brain

Why cultural neuroscience?
- People of all cultures can be affected by mental and learning disorders
- Certain cultural influences may affect rates of disorders
- Understanding how the signs and symptoms of disorders may be affected by culture could help professionals in diagnosis and treatment
- People of different cultures may respond differently to interventions


The How of Cultural Neuroscience
- Imaging
- Behavioral Surveys
- Cultural Neuroscience Framework
- Open-ended interviews
- Population genetics


Cultural neuroscience research motivated by 2 questions
- How do cultural traits (e.g., value, beliefs, practices) shape neurobiology (e.g., genetic and neural processes) and behavior?
- How do neurobiological mechanism (e.g., genetic and neural processes) facilitate the emergence and transmission of cultural traits?


Neurobiological Influences: Infant Biological Variations
- Motor processes
  - motor maturity
  - tone
  - head control
  - defensive movements
  - vigor of movement

Neurobiological Influences: Infant Biological Variations

- Regulation of states
  - habituation
  - irritability
  - lability
  - consolability
  - self-quieting


Neurobiological Influences: Infant Response to Inoculation

- Caucasian-American
  - high behavior
  - low cortisol
- Japanese
  - low behavior
  - high cortisol


The Muller-Lyer Illusion

Influence of Culture on Perception

Perceptual Organization-Müller-Lyer Illusion
Hofstede’s Cultural Dimensions

- Collectivism vs. individualism
- Small/large power distance
- Weak/strong uncertainty avoidance
- Femininity vs. masculinity


https://www.hofstede-insights.com/product/compare-countries/

Language spoken in Virginia

<table>
<thead>
<tr>
<th>Language</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>Spanish</td>
<td>66,162</td>
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<tr>
<td>Hindi</td>
<td>7,608</td>
</tr>
<tr>
<td>Chinese (including Mandarin and Cantonese)</td>
<td>77,618</td>
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<tr>
<td>Korean</td>
<td>31,770</td>
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<tr>
<td>Vietnamese</td>
<td>33,692</td>
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<tr>
<td>Tagalog (including Filipino)</td>
<td>39,688</td>
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<tr>
<td>Arabic, Somali or other Afro-Arabic languages</td>
<td>39,686</td>
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<tr>
<td>Yiddish</td>
<td>29,516</td>
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<tr>
<td>Persian (including Farsi and Dari)</td>
<td>24,137</td>
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<tr>
<td>Urdu</td>
<td>87,972</td>
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<tr>
<td>German</td>
<td>29,904</td>
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<td>Tigrinya</td>
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<td>Yoruba, Twi, Ewe or other languages of Western Africa</td>
<td>23,644</td>
</tr>
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<td>Bengali</td>
<td>17,877</td>
</tr>
</tbody>
</table>

Cultural Dimensions

https://www.hofstede-insights.com/product/compare-countries/

Masculine/Feminine

**Masculine**
- Competition valued
- Achievements admired
- Best person sets the norm
- Be assertive and decisive
- Gender separation of tasks
- Conflicts resolved by argument

**Feminine**
- Equality emphasized
- Achievements downplayed
- Be modest, soft-spoken
- Conflicts resolved through compromise and negotiation

Uncertainty Avoidance

**Weak**
- Rules limited to those necessary
- Ambiguous situations and unfamiliar risk cause no discomfort
- Unusual behaviors and innovative ideas tolerated

**Strong**
- Expect rules
  - Rigid taboos of right/wrong
- Familiar risks accepted; ambiguous situations and unfamiliar risks avoided
- Innovation distrusted
- Motivated by security and belonging
- Like structured learning and clear right/wrong answers
Denmark, Japan, USA, Britain, Sweden, Norway, Portugal, France, Mexico, Germany, Singapore, Finland, Belgium, Italy, Argentina, Korea, Hong Kong, Chile, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Australia, Austria, India, China, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, Uruguay, Israel, Greece, Austria, Hungary, Taiwan, Iran, 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Self-Construal Scale

Interdependent Collective
- I have respect for authority figures with whom I interact
- My happiness depends on the happiness of those around me
- If my brother or sister fails, I feel responsible
- I should take into consideration my parents’ advice when making education/career plans
- It is important for me to maintain harmony within my group

Independent Individualist
- I’d rather say “No” directly, than risk being misunderstood
- I am comfortable being singled out for praise/rewards
- I act the same way no matter whom I am with
- Being able to take care of myself is a primary concern for me
- I enjoy being unique and different from others in many respects

Context-Dependent Attention & Framed-Line Task

East
- Holistic (field dependent)
- Focus attention on field in which object is located
- Ascribe causality by reference to the relationship between the object and the field

West
- Analytic (field independent)
- Focus on object; categorize it by reference to its attributes
- Ascribe causality based on rules about it

Holistic/Analytic

- Americans began descriptions by mentioning salient objects more frequently than Japanese
- Japanese began by mentioning information about field twice as often as Americans and made 65% more observations about field than Americans


Contrary to what one’s behavior might indicate, this

**Congruent/Incongruent Pictures**


**Similarity Judgment**

- Koreans more often matched target to group 1
- Americans more often match target to group 2


**Pit-self vs. flexi-self**

https://www.youtube.com/watch?v=mabjJJDqjFM

**Thinking of Self or Others**

- Judge if adjectives described self or another
  - Westerners used ventral medial prefrontal for self judgments but not for judgments about others
  - Chinese used ventral medial prefrontal for both self and other judgments

Ideas about choice

Sheena Iyengar
https://www.youtube.com/watch?v=h3Tp_nscwJM

Rethinking Choice

7-9 year-old Asian American and Anglo-American children


Mean number of anagrams completed correctly


Time spent on anagrams during free-play period


Health Choices

Feelings about the experience

Feelings about choice

American

French


Power Distance

Low Power Distance

- Parents teach children to obey
- Children respect parents & those in authority
- Teachers take initiative in class
- Teachers are to transfer wisdom
- Students respect teachers
- Persons expect direction

High Power Distance

- Persons must earn respect
- Collaborative classrooms
- Teachers facilitate learning
- Persons direct themselves
Levels of Mitigated Speech

1. Command: “Turn 30 degrees right.” Most direct way of making a point – zero mitigation
2. Crew Obligation Statement: “I think we need to deviate right about now.” Use of “we” and request is less specific
3. Crew Suggestion: “Let’s go around the weather.” Implicit in that statement is “we’re in this together.”
4. Query: “Which direction would you like to deviate?” Softer because speaker is conceding that he’s not in charge.
5. Preference: “I think it would be wise to turn left or right.”


Hints

• First Officer: Look how the ice is just hanging on his, ah, back, back there, see that?
• First Officer: See all those icicles on the back there and everything?
• First Officer: Boy, this is a, this is a losing battle here on trying to do those things, it (gives) you a false feeling of security, that’s all it does.
• Then suggestion
  • First Officer: Let’s check those [wing] tops again, since we’ve been setting here awhile.
  • Captain: I think we get to go here in a minute.
  • First Officer: We’re going down.


Power difference and Empathy


Power Distance & Empathy

• High power distance greater response to Ingroup
• High Power distance – more TPJ activity
  – Emotions suppressed so …
• Low power distance can make greater use of social cues; need less conscious theory of mind

Power Distance
- Large Power Distance
  - High Individualism
- Large Power Distance
  - Low Individualism
- Small Power Distance
  - High Individualism
- Small Power Distance
  - Low Individualism


The Bicultural Self

- Cultural context dynamically influences how bicultural individuals think of themselves and their relation to others


Language Used Influences Content of Thought

Japanese
- When my wishes conflict with my family, it is a time of great unhappiness.
- My greatest pleasure is to graduate from graduate school.

English
- When my wishes conflict with my family, I do what I want.
- My greatest pleasure is to lie on the sand of the beach out West.


Cultural Priming

Sumerian Warrior Story:
- Read an essay
  - Warrior is chosen based on his merit
  - Warrior is chosen based on his family relations

Similarities and Differences with Family and Friends:
- Write an essay
  - What makes you unique from your friends and family?
  - What do you have in common with your friends and family?


IMRI Self-Judgment Task

General
- In general
  - I am humble
  - I am modest
  - I am modest

Contextual
- When talking to my mother
  + I am modest

Font
- Italics?
  - I am modest

**Primed Biculturals**

- Within medial prefrontal cortex and posterior cingulate
  - Participants primed for individualism showed greater activation for general self-descriptions
  - Participants primed for collectivism showed greater activation for contextual self-descriptions


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**Culture-Gene Coevolutionary Theory**

- Adaptive behavior is the product of two interacting and complementary evolutionary processes
  - Cultural selection
  - Genetic selection
- Cultural traits are adaptive and emerge due to environmental and ecological pressures that vary across geography under which genetic selection occurs


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**Serotonin Transporter Gene (SLC6A4)**

- Short allele 5-HTTLPR results in higher concentrations of serotonin at synaptic cleft relative to long allele
- Associated with
  - Increased negative emotions
  - Heightened anxiety
  - Harm avoidance
  - Fear conditioning
  - Attentional bias to negative information
  - Increased risk of depressions particularly in presence of environmental risk factors


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**Short-allele of SLC6A4 Polymorphic region: 5-HTTLPR**

- 70-80% of East Asian sample S carriers compared to
- 40-45% of Europeans are S carriers of the 5-HTT genotype
- Effects influenced by culture
- In independent populations correlates with higher rates of negative affect, anxiety, and depression
- In collective populations, persons with this gene less likely to be depressed


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**Attention as Function of Culture and 5-HTR1A Serotonin Genotype**

Serotonin transporter gene diversity and cultural traits of individualism–collectivism across countries. *(a) Color map of frequency distribution of IND–COL from Hofstede (2001). (b) Color map of frequency distribution of 5 alleles of 5-HTTLPR. (c) Color map of frequency of global prevalence of anxiety. (d) Color map of frequency of global prevalence of mood disorders. Yellow to red color bar indicates low to high prevalence.*

Genotypes Influence Response to Trauma

- Children with these genotypes who are reared in negative social environments (abuse/neglect) more affected
  - Short form of DRD4 (dopamine receptor gene): associated with poorer regulation of emotions/complex behaviors
  - Low-activity MAOA genotype (monoamine oxidase A—metabolizes stress hormones): associated with greater aggression
  - AA or AG allele of OXTR gene: associated with more sensitivity to stress, fewer social skills


But response to trauma is also influenced by:

- Caregiver-child attachment
  - Children with secure attachments who have experienced war trauma exhibit less/shorter PTSD and better mental health than children with insecure attachments.
  - Collective-individualistic cultural values

Behavioral Characteristics

High Context
- Polychronic time
- Group Orientation
- Learn by observation

Low Context
- Monochronic time
- Individual orientation
- Learn by being taught

Possible Exception: Academics for Asian cultures

Behavioral Characteristics: Time

High Context
- Polychronic Time
- 9-9:30 math
- 9:30-10 spelling
- 10-11 reading

Low Context
- Monochronic Time

Communication Styles

High Context
- Learn by Watching

Low Context
- Learn by being Taught
**Language Characteristics**

**Collectivistic/High Context**
- Function:
  - Establishing and maintaining relationships
- Topic:
  - Indirect
  - Meaning in context
- Structure:
  - Simple syntax
  - Nonspecific vocabulary
  - Frequently not linear

**Individualistic/Low Context**
- Function:
  - Conveying information
  - Establishing one's point of view
- Topic:
  - Direct
  - Meaning in text
- Structure:
  - Complex syntax
  - Explicit vocabulary
  - Usually a linear organization


**Language Function**

**Collectivism/High Context**
- Rapport Talk
  - Establishing and maintaining relationships

**Individualism/Low Context**
- Report Talk
  - Conveying information
  - Establishing one's point of view

**Language Characteristics: Function**

**High Context**
- Rapport Talk
  - Open the door
  - Social, need meeting

**Low Context**
- Report Talk
  - Let's decide what we'll do on vacation
  - Reflecting, planning

**Language Characteristics: Function**

**High Context**
- Genuine questions
  - Jim, what time is it?
  - Genuine questions

**Low Context**
- Pseudoquestions
  - I lost my watch.
  - What time is it?

**Language Characteristics: Function**

**Collectivism/High Context**
- Indirect
  - This food looks good

**Individualism/Low Context**
- Direct
  - This food looks even good

**Language Topic**

**Collectivism/High Context**
- Symmetrical Communication

**Individualism/Low Context**
- Asymmetrical Communication
**Language Characteristics:**

**Topic**
- High Context: Topic-Associated
- Low Context: Topic-Centered

- Wow, that dinosaur is big.
- Did you see that elephant at the zoo?
- They are big.
- How are animals big?

**Language Characteristics: Topic**
- Collectivistic: High Context
- Individualistic: Low Context

- All mammals are warm-blooded. Tapirs are mammals. Are tapirs warm-blooded?

**Language characteristics: structure**
- Collectivistic: High Context
- Individualistic: Low Context

- I want that thing over there.
- Give me the big red marker that’s on the table by the door.

- simple syntax, nonspecific language
- complex syntax, explicit language

**Language Structure - Cohesion**
- WOW! Look at him FALL!
- ...because the man slipped on a banana peel. He hurt himself badly.

- Cohesion - Intonation
- Cohesion – Linguistic Markers

**Why consider a cultural neuroscience framework?**
- Implications for how we develop services and provide interventions to diverse populations
- Helps us understand how human brain is shaped by man-made sociocultural contexts
- Helps us understand cultural differences in human behaviors
- May help to develop constructive ways to deal with misunderstandings and conflicts between different cultural groups


**Nepantla – The Between Land**
- conocimiento [knowing]
- desconocimiento [unknowing]

- persons from nondominant cultures
- dominant culture


The beauty of the world lies in the diversity of its people.