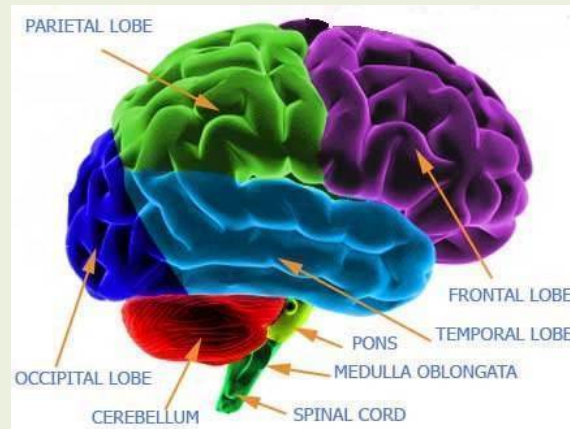


Cognitive Approaches to Difference: Implications for WAC of Current Neuroscience Research

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How does learning new genres impact students' identities?

Helen: I thought there was no such thing as the self.

Ralph: No such *thing*, no, if you mean a fixed discrete entity. But of course there are selves. We make them up all the time.

David Lodge *Thinks*

Main Points to be covered

- Research in neuroplasticity
- The issue of genre and identity
- Some relevant studies in neuroplasticity
- Suggestions for classroom implementation

Connectomes and Identity

Sebastian Seung *Connectome: How the Brain's Wiring Makes Us How We Are* (2011)

A Connectome: “the totality of connections between the neurons in a nervous system,”

Connectomes change throughout life.



Influences on Connectomes

- Life Experiences
- Activities
- Skill Acquisition
- New Knowledge

Connectomes and Identity?

- Neuronal activity is always in flux

Therefore—

- Identity is not an essentialized, permanently etched static construct
- Identity is complex—subject to change
- Identity is performative
- People can have agency over who they become.

Implications for Writing Studies?

- Concept of Neuroplasticity—changes in the brain as a result of life experience, activities and learning
- Provides new perspective on the authenticity of identity. Identity is performative.
- Problematizes ethical issues concerned with the issue of academic genres and identity

Ethical Issues Associated With Identity Change

- Tendency to Distrust
- Regarded as schemers or performers
- Ethically inferior

The Ethical Issue

- Deliberate identity change has always been viewed with suspicion--
 - Sophists
 - Politicians
 - Used car salesmen

But we teach audience awareness

- Idea that absolute authenticity is not possible
- Need to adjust authorial persona address an audience effectively

Significant Issue in Rhetorical Genre Studies

- Bartholomae, 1985; Bazerman, 2002; Gee 2001; Hyland, 2002; Ivanic 1998; LeCourt, 2006; among others
- Particularly significant for educationally disadvantaged students
- Culturally isolated—at university and at home

IDENTITY CHANGE AS AN ETHICAL ISSUE

- Academic genres immerse students in new ways of viewing the world—differences in how one speaks, writes, acts, and thinks



Identity Threat: The Alienation Narrative

- Students are immersed in academic genres that are associated with ways of thinking, attitudes, beliefs, ideologies and behaviors that normalize elitist values and normalize power inequities.
- Can students become proficient “academic” writers without accepting the social hierarchies in which these genres participate?

Role Playing?

- Don't we all play different roles?
- Don't we WANT our students to learn to play different roles when they write, in response to different audiences?
- Differences between “real” selves and discoursal roles?

Previous Concepts of the Brain

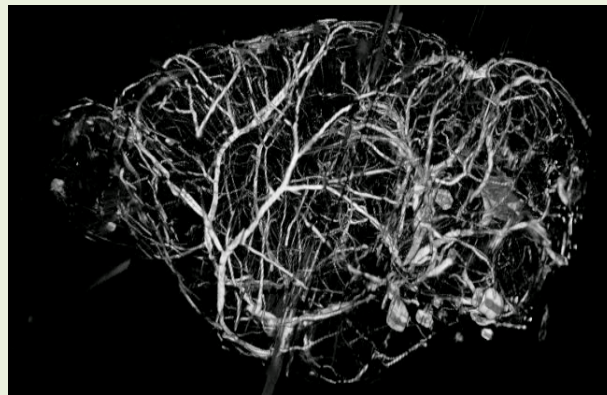
The brain doesn't change.

We are stuck with what we are born with.



However—new research indicates--

- **The Brain changes frequently**
- **Neuroplasticity—new neurons form** based on activity, experience, and learning



Neuronal Activities Perpetually in Flux

- Identity is not a permanent entity, but rather is subject to frequent transformation.
- Who we *are*, in terms of how we view ourselves and present ourselves to others, is linked to what we *do*.
- Awareness enables agency.

Begley 2007—Brain Reflects Activities

- The brain devotes more cortical real estate to functions that it's owner uses more frequently and shrinks the space devoted to activities rarely performed
- Brains change according to what we do and what we think.

Neuroplasticity

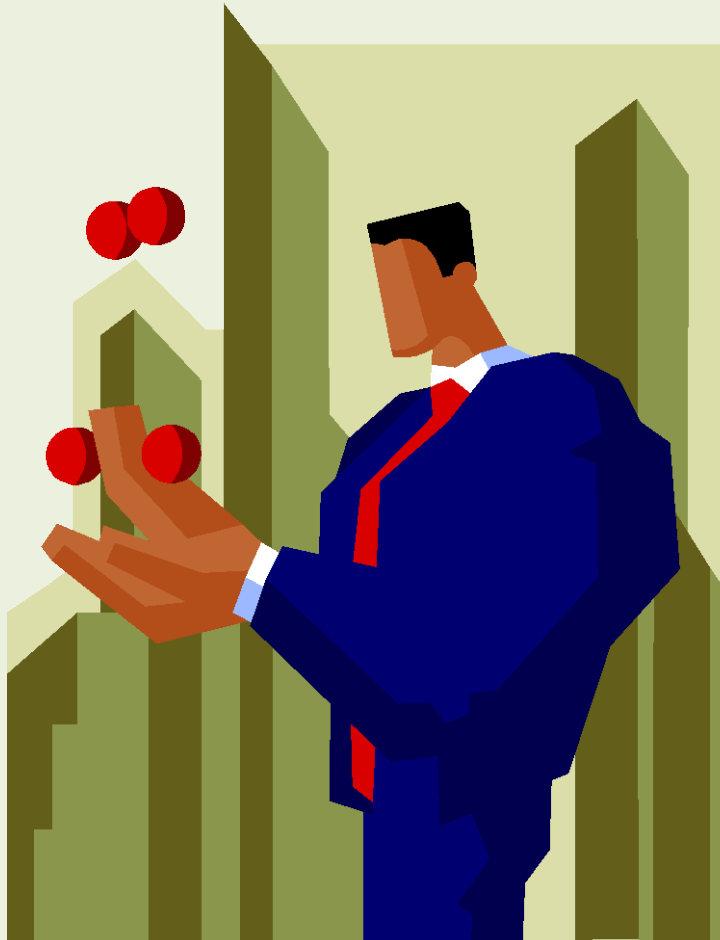
- **Thinking about playing the piano leads to measurable changes in the brain's motor cortex.**



Studies indicating the Impact of Learning on the Brain

- Juggler's study.
- Taxi Drivers Study
- Nuns Study

The Ability to juggle can be seen in the brain.



Taxi Drivers Study

- University College, London
- Taxi Drivers given brain scans.



Results of Taxi Drivers Study

- Gray Matter enlarges to help them store a mental map of London.
- Hippocampus enlarged the longer they spent on the job.

Children With Dyslexia

- Students improvement in both oral language and reading performance was manifested directly in the brain.

The Nun Study

- 1930-678 nuns wrote short biographical texts
- Details of parentage, childhood events, schooling, other influences



Nun Study

- Inverse correlation between high performance in youth and cognitive impairment later in life
- Measured “idea density”
- Study published in 1996

Nun Study Findings

- 14 sisters died (1996)
- Confirmed Alzheimer's disease present in all of those with low idea density in early life and in none of those with high idea density.

Later Study 2005

- 90 participants
- “regardless of evidence of Alzheimer’s in the brain, sisters who had better language ability early in life were less likely to exhibit symptoms.

Latest Study 2009

- Nuns who did not have dementia in later life had 20% higher linguistic scores as young women
- Did these nuns have a different sense of self?
- Is this causally or correlationally linked?
- Perhaps genetic factors?

?????

IDENTITY, AGENCY AND PERFORMANCE

- Identity has multiple facets—
- For most students, identities in educational contexts are transitory
- Many students are already aware of how their engagement with unfamiliar academic genres can affect how they are perceived by and interact with others,

Agency

- Schwarz and Begley—concept of the volitional brain;
- Cite work by Kronhuber and Deecke (1964) and extended by Libet
- Benjamin Libet—conscious will can affect the outcome of an action, even when an action is initiated by unconscious cerebral processes.

Awareness Enables choice

- Ivancic's research—autobiographical self versus discoursal self.
- Students taught to analyze the relationship between their “identities” and academic writing.
- Students refer to trying identities on for size
- Some wished to acquire an academic identity. Some did not—**no fun!**

Awareness, Choice, and Identity

- With awareness—students have greater agency over their choices.
- Students can explain the rationale for identity choices.
- Identity can be viewed as a type of performance.

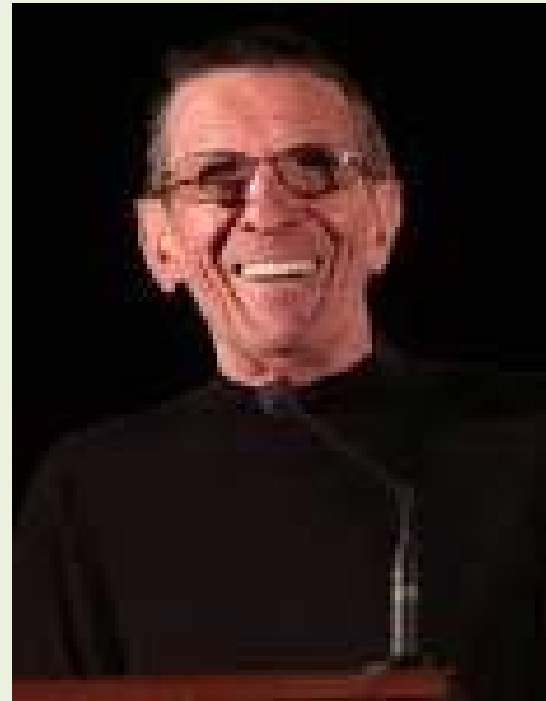
Identity and Performance

Actors understand that they are playing a role and do not undergo a significant transformation from their everyday selves.

Leonard Nimoy's Autobiography and Mr. Spock

Volume I / *I Am Not Spock* (1975)

Volume II / *I Am Spock* (1995)



Nimoy and Spock

- Nimoy said that the character of Spock had always been a part of him—representing traits within himself that he had always admired.
- But only a *part*—not identical—and he was **aware**.
- This should be a goal in our classes.

In Our Classes

1. Foster Reflection, Metacognition and Genre Awareness, personal and cultural awareness
2. Incorporate the use of imitation and modeling as a means of helping students practice playing various roles and gain agency over whom they wish to be.
3. Teach the issues—ethical concerns, brain research, identity complexity

In Our Classes

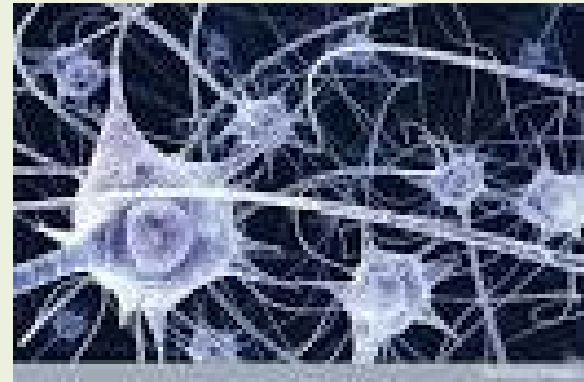
- Provide opportunities for imitation and practice. Not what **MUST** be done, but what **MIGHT** be done.
- Practice creates neural pathways. Neurons create synapses, which create pathways.
- Like crossing a field of grass.

Outsider/Insider

- We are all sometimes outsiders and insiders.
- Sometimes it is okay to be an outsider.
- Like Prufrock: we must “prepare a face to meet the faces that you meet.”

Neuroplasticity and Shakespeare

All the world's a stage,^[SEP] And all the men and
women merely players;^[SEP] They have their exits
and their entrances,^[SEP] And one man in his time
plays many parts.



To Keep in Mind--

- The issue of identity is complex and new research in neuroplasticity is likely to yield new insights.
- Important for us in Writing Studies to foster students' **awareness** as a means of enabling choice.