



Understanding the Early Reading Brain & Classroom Implications

ODEW Literacy Academy 2024



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Misconceptions &  Scientific Principles that Refute Them

- Misconception 1: Reading is acquired *naturally*, like speech.
 - **Humans brains are wired for speaking, not reading. Thanks to *brain plasticity*, we can rewire for reading.**
- Misconception 2: Learning to read starts with memorizing shapes of words or "sight" words.
 - **Mapping (not memorizing) supports neural specialization and pattern generalization, which is required for efficient reading.**
- Misconception 3: Explicit, code-based instruction (i.e. "Phonics") leads to a "drill & kill" mindset focused on words "out of context"
 - **Automaticity as a non-negotiable for comprehension. Learning circuitry and emotional circuitry are connected. We must frame as "thrill and skill."**

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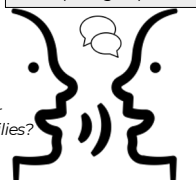
Human beings *aren't* wired for written language (reading & writing).
 We are wired for spoken language (speaking & listening).

Requires *Instruction*
("taught")

天地玄黃
 अइउण्।
 ABCD

Humans have been reading and writing for only around 5,000 years

Develops with *Immersion*
("caught")



Implications for educators and families?

Humans have been speaking for at least 50,000 years and communicating even longer

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Brain Plasticity: A Rhyme for Families (Strom 2021)



<p>My Brain</p> <p>My brain is plastic, so fantastic Just like elastic, changes can be drastic! The more I learn, the more my brain changes... And rearranges!</p>	<p>Mi cerebro</p> <p>Mi cerebro es de plástico, tan fantástico ¡Al igual que el elástico, los cambios pueden ser drásticos!</p> <p>Cuanto más aprendo, más cambia mi cerebro ... ¡y se reorganiza!</p>	<p>Wǒ de nǎo 我的大脑</p> <p>wǒ de dà nǎo shì yǒu kě sù xìng de , fēi cháng qí miào 我的大脑是有可塑性的, 非常奇妙 jiù xiàng sōng jīn dài yí yàng , huì yǒu fēi cháng jī dòng rén xīn de biàn huà 就像松紧带一样, 会有非常激动人心的变化 wǒ xué de yuè duō , wǒ de dà nǎo jiù huì biàn huà de yuè duō 我学的越多, 我的大脑就会变化的越多 hái huì zuò chū tiáo zhǎng 还会做出调整</p>
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Review of Brain Plasticity Principle

- **Principle #1: Brain Plasticity**
 - Learning how to read is **not like learning how to talk**. But, because our brains have **neural plasticity**, we can **create a new circuit** for it.

Reading is taught not caught

Stop & Jot/Draw: Anything from Principle #1 that you want to remember or share with a colleague? What does this principle mean for your instruction?

- Key takeaways or main point of this principle?
- Anchor image to remember the concept?
- Application to your instructional setting?
 - Whole group classroom?
 - Small group intervention?
 - School wide leadership and family partnerships?
 - 1:1 intervention?

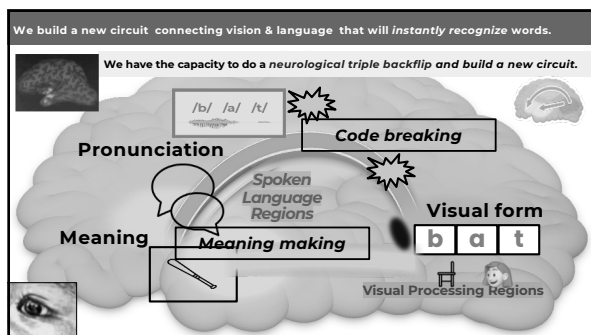


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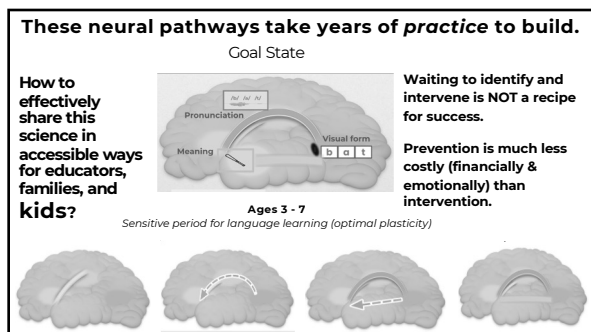
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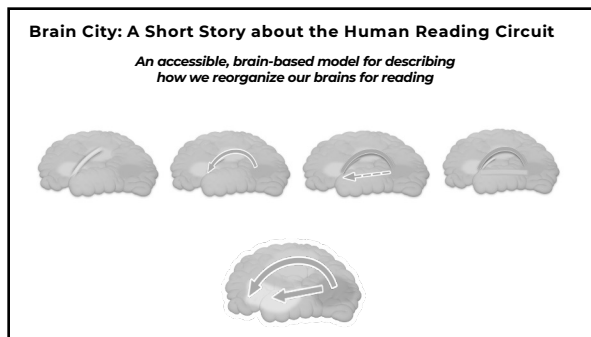
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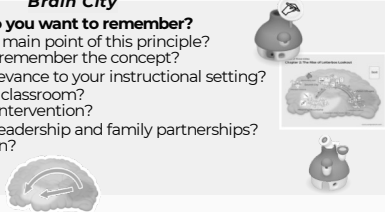
Review of Neural Specialization Principle

- **Principle #2:** For reading, brain regions become increasingly specialized for letter patterns and for processing parts of written words

Brain City

What big idea do you want to remember?

- Key takeaways or main point of this principle?
- Anchor image to remember the concept?
- Application or relevance to your instructional setting?
 - Whole group classroom?
 - Small group intervention?
 - School wide leadership and family partnerships?
 - 1:1 intervention?



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8 Thrill to Skill Routines (Classroom & Kitchen Table Practices)

Building and Connecting brain neighborhoods in memorable ways




8 Thrill to Skill Routines (KTPs or "Kitchen Table Practices")

1. I Hear with my Little Ear
2. Guess My Lunch
3. Word Play: Nursery rhymes, songs, books
4. Fiddle with the Middle
5. Turtle Talk
6. Cross-Linguistic Anchor Charts
7. Sound Spots
8. Story Phonics & Embedded Cues

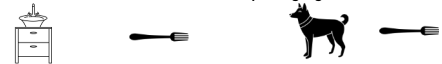
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Call explicit attention to sounds in words with I Hear with my Little Ear

I spy with my little eye...
Something that begins with the **Letter C!**




Routinely play "I Hear" at home with household items ...in **multiple languages!**



/s/ /f/ /p/ /t/

I hear with my little ear...
something that begins with **/k/**



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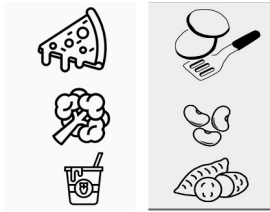
Call attention to sounds in words with Guess my Lunch

Routine: **Guess my lunch** (or dinner or breakfast)

For lunch, I had three things.
They start with:

/p/ /b/ /y/

Turn to the person next to you and see if they can guess what you had for lunch yesterday. Just tell them the first sound of 1-2 things you ate or drank for lunch.




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Word Play: Nursery Rhymes


Hickory Dickory Dock
The mouse ran up the clock
The clock struck one.
The mouse ran down.
Hickory Dickory **Doop**




Hickory Dickory Doodle...
The mouse ran into a poodle!
The clock struck one.
The mouse ran down.
Hickory Dickory **Doodle**



Hickory Dickory Doop...
The mouse ran in a loop
The clock struck one.
The mouse ran down.
Hickory Dickory **Doop**



Hickory Dickory Dumbo
The mouse ran through some gumbo!
The clock struck one.
The mouse ran down.
Hickory Dickory **Dumbo**



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Word Play: Songs

What happens to
 "Happy **B**irthday to you!"
 when you change the
 initial phoneme to /**m**/?



@PhonicsMan

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Word Play: Read Alouds



Cox, J. (2009) *Pick a Pumpkin, Mrs. Millie*. Marshall Cavendish, NY. Connection to "4th Grade Friends" projects

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Word Play: Read Alouds

...and provide opportunities for students to **talk** about them

Teacher: What's funny about Mrs. Millie saying "hang up your goats?"

Lashawn: Because we don't have goats at school. We got coats!

Teacher: Good! Let's think about the difference? Goats has what sound at the beginning of it?

Class: /g/

Teacher: What about "coats"? What's the sound at the beginning?

Class: /k/ (Then, Jayden raises hand)

Teacher: Yes, Jayden?

Jayden: I think C ("See") and K ("Koy") are friends.

Teacher: What do you mean?

Jayden: Because they both make the /k/ sound

Lashawn and Jaden, both 5 years old

Every day she says, "Good morning, children. Please hang up your goats."
 "Don't be silly, Mrs. Millie! You mean our coats!"


Cox, J. (2009) *Don't Be Silly, Mrs. Millie*. Marshall Cavendish, NY.

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Word Play: Can you solve these hink pinks or "mash ups" (portmanteaus) that combine sound play and meaning? Other word play games?

- Humorous rabbit
 - Funny bunny
- Upset father
 - Sad dad
- Lengthy tune
 - Long song
- Tub time rage
 - Bath wrath
- Dental detective
 - Tooth sleuth
- Light red beverage
 - Pink drink
- Short bush
 - Shrub stub

**Word Play:
Hink Pinks &
Combo Mambos**









- Hangry?
 - Hungry + angry
- Spork?
 - Spoon + fork
- Cockapoo?
 - Cocker spaniel + poodle
- Brunch?
 - Breakfast + lunch
- Appletini?
 - Apple + martini
- Webinar?
 - Web + seminar
- Flagel?
 - Flat + bagel
- Athleisure?
 - Athletic + leisure
- Nes? (3 year old generated)
 - no + yes

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Play with (i.e. "manipulate") sounds with Fiddle with the Middle (sound swap/sub)

For younger students or those not ready to swap a medial vowel themselves, you can play Silly Questions that "fiddle with the middle" to get them to tune into the middle sounds.

Starter words	a
	
	
	

What do you put on your foot...a **sock** or a **sack**?

How do we find directions...with a **mop** or a **map**?

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Turtle Talk





Turtle Talk in Action

How would the turtle say **"bath"**?

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Play with sounds using Turtle Talk (Blending words and worlds) /sh/ /sh/ /sh/

Note: This can be played at the phoneme, onset-rime or body-coda level.

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Anchor charts: Sound Contrasts

Teacher: So, let's review. All friends, what sound do we say when we see this letter?

Class: /a/

Teacher: Okay, now hands raised. What is the picture that helps us remember the sound? Salvador?

Salvador: Manzana!

How would you respond to Salvador?

Teacher: Yes, **you're right** - in Spanish, this is called manzana. In English we call it an "apple." Let's all friends say what is this?

C: An apple

Teacher: I think we should put manzana and apple on our **chart**. You know what makes saying this word extra tricky? **There is no /a/ sound in Spanish.**

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Classroom Strategy for Encouraging Mapping: Sound Spots
(similar to Elkonin boxes or "sound boxes")

Parking spots for phonemes in Names

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Map words explicitly with Sound Spots, calling attention to both regularities and irregularities.

Related resource: [Heart Word Magic](#) (highlighting the tricky to make it sticky)

[Word mapping tool](#)

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Story Phonics & the Embedded Cue Method

Research Base

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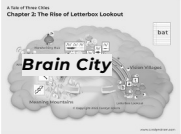

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What Thrill to Skill routine or KTP might engage your students?

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Closing & Conversation: Three Principles for Building Capacity

<p>Plasticity</p> <p>天地玄黃</p> <p>31 Taught not Caught</p> <p>ABCD</p> 	<p>Specialization</p> <p>A Year of Neuroscience Chapter 2: The Rise of Letterbox Lockout</p> 
<p>Automaticity</p>  <p>Thrill & Skill</p> <p>Turtle Talk</p>	<p>Stay in touch! hello@carolynstrom.com Connect on LinkedIn. Sign up for a newsletter at: www.carolynstrom.com @carolyn_strom</p>
