Teaching Students Who Have Both ADHD and Dyslexia to Read

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Attention Deficit/Hyperactivity Disorder

• The American Psychological Association (APA) estimates that about 5% of children have ADHD
• The APA recognizes three subtypes of ADHD
  – Primarily hyperactive-impulsive type
  – Primarily inattentive type
  – Combined type
• ADHD is probably over-diagnosed (at least in the US), but it is a real psychological disorder
What is Attention Deficit/ Hyperactivity Disorder?

- ADHD is a neurologically-based condition, resulting primarily from genetics (about 80% genetic)
- It is not caused by bad parenting.
What is ADHD?

Persons with ADHD have **significant differences in the size and function of brain areas** believed to play a role in a set of important “executive” functions, including:

- Inhibition
- Self-Regulation
- Planning and Problem-Solving
- Working Memory
Inhibition

• The ability to delay one’s initial reaction or response to something; An internal “brake” or “filter”.

• Poor inhibition can result in difficulties controlling behaviors that are not relevant to a task; may result in hyperactivity and impulsivity.
Self-Regulation: The ability to...

...Change course when needed; stop or start doing something in response to feedback
Self-Regulation: The ability to...

...Control one’s own emotions; calm yourself down when upset; restrain yourself from lashing out when you perceive you have been attacked
Self-Regulation: The ability to...

...Regulate attention and sustain mental engagement with a task; make yourself keep paying attention even when a task is boring or difficult.
Difficulties with Planning and Problem-Solving

• Lack of flexibility in pursuing goals when problems arise
• Difficulties selecting and following a strategy to accomplish a goal
Working Memory

• The ability to **hold information in memory** and **perform an operation on it at the same time**; the brain’s “worktable”
• Necessary for following multi-step directions and carrying out complex thinking (like comprehension monitoring)
“Sounding Out” (decoding) a Word

- Sound of the first letter
- Sound of the next letter
- Sound of the next letter

Blend the sounds and read the word
Comprehension Monitoring

What I already know or understand about the topic

What I understood from the preceding text

What I understand in this part of the text

Now, what should I do? Keep reading? Reread? Stop and think?
Children with Both ADHD & Reading Disabilities

- Reading Difficulties & Disabilities (RD) and ADHD are distinct disorders that impact different regions of the brain.
- They co-occur in about 25%-40% of persons with either disorder.
Children with Both ADHD & RD

- **Inattentiveness**, rather than hyperactivity, is primarily associated with reading difficulties and disabilities.
As a Group, Children with Both Reading Disabilities and ADHD have...

- More severe reading difficulties than with RD alone
- More severe attention difficulties than with ADHD alone
- More severe academic failure
- More severe social impairment; more antisocial behaviors
- Weaker response to interventions
- Lower graduation rates
- Greater likelihood of being in the juvenile justice system
- Poorer long-term social and work outcomes

Seidman, 2001; Willcutt et al., 2007, 2010
Interventions for Children with Both ADHD & RD

- Well-validated interventions exist for each condition individually.
  - ADHD Medications & Behavioral Interventions
  - Intensive Reading Intervention
- Much less is known about effective approaches for children with both conditions.
I-CARD: Interventions for Children with Attention and Reading Difficulties

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Our Question

When children have both ADHD and serious reading difficulties...

– What is the effect of just treating the ADHD?
– What is the effect of just providing intensive reading intervention?
– What is the effect of providing interventions for both conditions?
Study Participants

- 216 Children from 63 different schools, recruited over 5 years
- Grades 2-5, Average age = 9 years
- Majority African American and economically disadvantaged
- All had difficulties with word reading and/or decoding
- All had diagnosed ADHD, Inattentive or Combined Type
ADHD Treatment

• Carefully-Monitored Medication
  – Saw the study doctor weekly at first, then monthly
  – We collected ratings of performance and side effects from parents and teachers before each clinic visit
  – Doctor changed medications and dosages until child did well, and this was continuously monitored
  – 4 possible medications to choose from

• Parent Training: Parenting a Child with ADHD
Intensive Reading Intervention

• Provided at the children’s schools

• Four days per week for 45 minutes, for 16 “school weeks”.

• Individual or in groups of two students with one teacher

• Addressed word reading, decoding, text reading accuracy and fluency, & comprehension

• Most tutors had teaching credentials; tutors were well-trained and observed frequently
Random Assignment to 3 Groups

216 Children with ADHD and RD in Grades 2-5

- ADHD Treatment Only
- Reading Intervention Only
- BOTH ADHD Treatment and Reading Intervention
Results

For Improvement in ADHD Symptoms:

• **ADHD Medication and Parent Training** result in improved attention and decreased hyperactivity more than providing reading intervention alone.

• **Adding reading intervention** to ADHD treatment was *not* better *for improving ADHD symptoms*
Results

For Improvement in Word Reading, Decoding, Reading Fluency, and Comprehension of Sentences:

• Providing intensive reading intervention resulted in better outcomes than ADHD treatment alone.
• Adding ADHD treatment to reading intervention was not better for word reading, decoding, reading fluency, or sentence comprehension outcomes.
Results

For Improvement of Comprehension of Paragraphs and Texts:

• Providing ADHD treatment resulted in better outcomes than intensive reading intervention!

• Probably because the ADHD treatment improved attention, self-regulation, and planning/problem-solving, which are very important for reading comprehension
However...

- Although, as a group, students made progress in reading, they were still impaired after 16 weeks of intervention.
- Children with serious reading difficulties require intervention for a longer period of time.
Implications

When children have both ADHD and serious reading difficulties:

• Each problem must be treated.
• Just treating a child’s ADHD is unlikely to significantly impact word reading, decoding, reading fluency, or sentence comprehension.
• Providing medication and parent training may impact comprehension of paragraphs and texts.
• Children may require intervention for many months, or even years.
The I-CARD Reading Intervention
Learning to Read and Spell in English

• There are about **44 distinct speech sounds** in English (phonemes)
• There are about **250 ways of writing them**
• Many **sounds can be spelled in more than one way**: *babe*, *day*, *rain*, *vacant*, *eight*, *grey*, *gauge*, *great*, *vein*, *reggae*
• Many letters or letter combinations can **represent more than one sound**: *beach*, *bread*; *now*, *yellow*
• Some sound-spellings are much more common than others 😊
Keep in Mind...

Students who are performing below grade level will only close the gap with their classmates if they learn **FASTER** than other students.

*More Instruction*

*Efficient Instruction*

*More Practice*
Intensive Reading Intervention

• Direct, carefully sequenced, explicit instruction in phonological decoding, word reading, spelling, and fluency with comprehension

• Extended opportunities to practice reading and spelling skills

• Practice reading and writing text with teacher support and feedback

• Using data from ongoing assessments to target instruction
Part II - Multi-Syllable Words

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Mag can't run. Mag got a cut. Mag didn't run to you or dad. Mag had a bad leg.
Hands-On Phonics Practice (HOPP)
Supported Text Reading
Three-Step Strategy for Reading Words

1. Look for parts you know.
2. Sound it out.
3. Check it! Make sure the word you read makes sense.
Discourage reliance on a guessing strategy.

When reading non-decodable text: If the student doesn’t have the knowledge or skills to decode a word, the teacher models the 3-part strategy or supplies the word.
Fluency and Comprehension: Quick Reads
The Honeybee Dance

One way honeybees communicate with each other is by dancing. Honeybees do a special dance after they find nectar in flowers. Honeybees need nectar to live. When honeybees find nectar, they fly home to tell the other bees where to find the nectar.

A bee that finds nectar moves its wings very fast when it dances. The bee moves in a shape that looks like the number 8. The bee does the dance many times. After the dance, the other bees know where to find the flowers with nectar.
## Preview, Predict, and Check

<table>
<thead>
<tr>
<th>Preview 1</th>
<th>Predict 2</th>
<th>Read 3</th>
<th>Check 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>What do you think you will learn in this passage?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Why do you think that?</td>
<td></td>
<td></td>
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<tr>
<td>Illustrations</td>
<td>I predict that ___ because ___.</td>
<td></td>
<td></td>
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<tr>
<td>Diagrams</td>
<td>Read the passage.</td>
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<tr>
<td>Labels</td>
<td>Were you right? How do you know?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Captions</td>
<td>I thought I would learn ___. I was (right/not right) because I learned that ___.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Lesson Individualization**

<table>
<thead>
<tr>
<th>Option</th>
<th>Word Reading, Decoding, and Spelling</th>
<th>Hands-On Phonics Practice</th>
<th>Supported Text Reading</th>
<th>Fluency &amp; Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Balanced Emphasis</td>
<td>15-20 min</td>
<td>5-10 min</td>
<td>5-10 min</td>
<td>10-15 min</td>
</tr>
<tr>
<td>2. Decoding Emphasis</td>
<td>20-25 min</td>
<td>10-15 min</td>
<td>10-15 min</td>
<td>N/A</td>
</tr>
<tr>
<td>3. Fluency and Text Reading Emphasis</td>
<td>15-20 min in any combination</td>
<td></td>
<td>10-15 min</td>
<td>15-25 min</td>
</tr>
</tbody>
</table>
Hands-On Phonics Practice

• Active involvement with manipulatives and games encourages cognitive involvement.
• Students with learning difficulties need extended opportunities for practice.
• Feedback is essential. What is practiced becomes a habit: Don’t let students practice their mistakes!
Activities from *Responsive Reading Instruction* (Denton & Hocker, 2006)
BIG IDEA #1

Keep the Lesson Moving.
Keep Children Actively Involved.
Quick Pacing and Active Student Involvement

- Several brief instructional and practice activities
- Well-organized with little “down time”
- Little “Teacher Talk”
- Use Manipulatives
- Perky pacing
Perky Pacing

Make it snappy, keep it happy!
BIG IDEA #2

Provide Explicit Instruction.
Explicit Instruction

I do it

We do it

You do it
Explicit Instruction Routine

Model and teach (“I do it”)
Show students the correct way.

Guided practice with Feedback (“We do it”)
Students do it with teacher support.

Independent practice with Feedback (“You do it” & “Each of you do it”)
Students practice independently, teacher monitors and is prepared to “step back in”.

Cumulative practice
Students practice new items along with items already learned.
Letter-Sound Instruction

- This activity teaches letter sounds and sound-spelling patterns.
- Regular cumulative review is important!
Letter-Sound Instruction

“*I do it*” *My turn:* The sound of this letter is ___.

“*We do it*” *Do it with me.* What’s the sound of this letter?

“*You do it*” *Your turn.* What’s the sound of this letter?

What’s the sound, Mary? What’s the sound, Peter?...”

*CUMMULATIVE PRACTICE*

Let’s practice this letter along with the other ones we have learned.
BIG IDEA #3

Segment and Blend Sounds Smoothly.
Stretching Words

- Say the sounds in a word in a smooth, stretched-out way while pulling a Slinky apart.
- Say the whole word while putting the Slinky back together.
Don’t break between the sounds when saying a word slowly....

/j/  ŭ/  /m/  /p/
DO sound out words in a smooth, connected way!

s...m...oo...th
Stretching Words

• MODEL: “I do it”
  – My turn: Listen. I’m going to say the sounds in man. MMMmaaaannnn.

• GUIDED PRACTICE: “We do it”
  – Do it with me: Say the sounds in man.

• INDEPENDENT PRACTICE: “You do it”
  – Your turn: Say the sounds in man.
  – Joey, say the sounds in man. Martina, say the sounds in man.
Sound Out Smoothly

man

tan
BIG IDEA #4

Use Elkonin Sound Boxes With and Without Print.
Sound Boxes

This activity develops phonemic awareness. *No print* is used. There is one box for each SOUND in the word (not for each letter).
Sound Boxes

How many boxes would you need for:
Snake
Trick
Eight
Shop
Played
Sound Boxes with Letters

This activity builds on a phonemic awareness base and helps the student practice building and blending sounds to form words.
Sound Boxes with Letters

Later, mix up the magnetic letters. The student listens and selects the right letter or letters for each sound.
• Students “pull down the sounds” using imaginary chips.
• Students write the letters that spell each sound.
• There is one box for each sound.
I can't do it
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