“We’re not just playing games”
Improving Curricular Accessibility

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Previous Iterations

“Let me Learn”
Making ELA and Humanities/Social Studies Content Accessible to Students with Special Needs

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“The Hidden Demands”
Literacy Development and Executive Functions

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“We’re not just playing games”
Literacy Development and Executive Functions

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Topics We Will Cover:

Identify all the demands in your lessons. Use games to increase curricular accessibility while targeting content objectives, literacy-based skills, and components of executive functioning.

1. What does it mean to have an accessible curriculum?
2. What are planned and hidden demands in your lessons?
3. What’s the connection between Executive Functions and Literacy Skills?
4. What are teacher practices and instructional routines designed to enhance student learning?
Cooke’s Mission

We are a Kindergarten through 21 Program

29% Autism Spectrum Disorder (ASD)
18% Intellectual Disability (ID)
23% Speech and Language Impairment (SLI)
13% Other Health Impairments (OHI)
11% Learning Disability
5% Multiple Disabilities

Cooke School and Institute envisions a world in which all people with special needs are included as valued members of their communities, leading independent and purposeful lives.

The Common Elements:

- Learning Needs
- Adaptive Skills
- Social Emotional Needs
- Sensory/Motor Needs
Who am I?

14 years of classroom teaching experience:
- 3rd & 4th grade public school teacher, general education inclusion classroom
- 11 & 12th grade ELA and Social Studies private school, Special Education
- Math, Science, Literature Summer School Teacher, Massachusetts Department of Youth Services
- Adjunct Professor, Columbia University
- Adjunct Professor, New York University

Licensed Reading Specialist (Birth-Adult)
- Teachers College, Columbia University

Licensed Elementary Teacher (K-6)
- Boston College
1. What does it mean to have an accessible curriculum?
The various activities allow for diverse responses from students.

I’m using Station Learning Model.

The environment builds in student choice and student planning.

We’re not just playing games!

I’m using multisensory approach.

I’m providing regular and frequent opportunity for student application.

Students engaged in both review and deliberate practice.

I’m teaching discrete skills explicitly.
2. What are planned and hidden demands in your lessons?
<table>
<thead>
<tr>
<th>resistance vs struggle</th>
<th>“I don’t want to do it.”</th>
<th>“I can’t do it.”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What are reasons a</strong></td>
<td>What are reasons a student wouldn’t want to do something?</td>
<td>What are reasons a student wouldn’t be able to do something?</td>
</tr>
</tbody>
</table>
## Demands We Place on Students

<table>
<thead>
<tr>
<th><strong>Planned Demands</strong></th>
<th><strong>Hidden Demands</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The intentional part of the curriculum that contains planned goals, desired objectives, and the necessary content.</td>
<td>The demands of the curriculum, lesson, or activity that are unplanned but will impact a student’s ability to demonstrate the planned demands.</td>
</tr>
</tbody>
</table>
Demands We Place on Students

**Hidden Demands**

The demands of the curriculum, lesson, or activity that are unplanned but will impact a student’s ability to demonstrate the planned demands.

**Executive Functions**

**Prerequisite Skills**
3. What’s the connection between Executive Functions and Literacy Skills?
What is literacy?
Struggling Writers Often:

(a) have limited knowledge of what constitutes good writing,
(b) utilize an ineffective writing approach,
(c) do not engage in advance planning,
(d) have difficulty generating content,
(e) rarely make meaningful revisions,
(f) struggle with transcription (handwriting + spelling),
(g) evidence minimal persistence, and
(h) have an unrealistic sense of self-efficacy

(Graham & Harris, 2005a; Harris & Graham, 1996).
Struggling Readers Often:

(a) Have difficulty decoding / lack fluency or reading rate
(b) Do not readily access or apply prior knowledge
(c) Struggle with prioritizing information
(d) Lack vocabulary to support comprehension
(e) Unable to self-monitor or recognize when confused
(f) Less likely to employ comprehension clarification strategies
Our Focus

Executive Functions

Literacy Proficiency

Processing Speeds

Genetic Mechanisms
What are executive functions?

Cognitive processes needed to facilitate:
Executive functions must interact with other cognitive domains

For example,
- Dinner ≠ pile of ingredients on the table
- Dinner ≠ a recipe in a book
- Dinner = ingredients (what) plus a recipe (how)
“…certain executive functioning difficulties can emerge as early as kindergarten and they dramatically increase the likelihood of serious academic problems in the first half of elementary school.”

“Even beyond childhood, the ability to exert self-control in the early years, for which EFs are essential, predicts achievement, health, wealth, and quality of life in adulthood.”

“Children with learning disabilities have a difficult time performing actions that rely on executive functioning and therefore cannot reach the level expected of their peers in areas such as language…”

“Executive function skills were advanced as children communicated and negotiated with each other the components of their games during guided play. The engaging play motivated these students to practice self-regulation...”

“…both attention shifting and inhibitory control demonstrated unique direct associations with reading comprehension [in 4th graders].”

What do we know about EF?
What are executive functions?

**Working Memory**
The ability to store, manipulate, and sustain new information in the mind.

**Cognitive Flexibility**
The ability to switch tasks or shift our attention between information.

**Inhibitory Control**
One’s level of distractedness or ability to resist impulses or urges.
Enhancing and Practicing Executive Function Skills with Children from Infancy to Adolescence

Center on the Developing Child HARVARD UNIVERSITY
### Executive Functions & Literacy

#### Ideas to Support and Strengthen EF

<table>
<thead>
<tr>
<th>Ages:</th>
<th>3-5 Years Old</th>
<th>5-7 Years Old</th>
<th>7-12 Years Old</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Imaginary Play</td>
<td>Games Requiring Students to Remember Locations or Match:</td>
<td>Games increase in complexity</td>
</tr>
<tr>
<td></td>
<td>• create “roles” with behaviors that must be sustained • inhibit behaviors or responses that don’t follow “roles” or developed “rules” of play</td>
<td>• Promotes Working Memory and Cognitive Flexibility • Think of your classroom; How can a game of memory be used? (e.g. Can you create your own version of Go Fish, Crazy Eights, Uno using vocabulary, content, strategies?)</td>
<td>• Promote increased self-regulation • Music, Singing, and Dancing continue to promote working memory, self-monitoring, selective attention</td>
</tr>
<tr>
<td></td>
<td>PLAN a play: • planning requires thinking first, then acting = inhibitory control</td>
<td>Matching and Sorting • Promotes cognitive flexibility when rules are changed, (e.g. sort by matching letters, sort letters by color now) Introduce conflict resolution or negotiating strategies (e.g. flipping a coin)</td>
<td>• Create songs “to the tune of” using classroom vocabulary or content • Crossword puzzles • promotes working memory, cognitive flexibility</td>
</tr>
<tr>
<td></td>
<td>Group Storytelling: • requires flexibility and self-control to adjust additions to the plot</td>
<td>BINGO • Promotes inhibitory responses when the rule states to cover the opposite of what the leader calls (e.g. put a chip on day when “nighttime” is called) • Promotes working memory while holding directions in mind</td>
<td></td>
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</table>
Promoting Self-Monitoring

How are you teaching students to self-monitor?
Executive Functioning Adolescents

“During adolescence, executive function skills are not yet at adult levels, but the demands placed on these skills often are.”

developingchild.harvard.edu

Goal Setting:
● Teach students HOW to set goals and reach them
● Short term vs long term goals
● Require writing a personal journal (self-reflection and planning)

www.developingchild.harvard.edu
Executive Functioning Adolescents

Curricular Implications:

• Model how to break down projects into manageable pieces
• Create timelines *with* students
  – (e.g. provide rationale for time between essay drafts)
• Use timers in the classroom to promote self-monitoring
  – (e.g. if you’re confused, lost, uncertain of what to do, what needs to happen next?)
• Sabotage experiences
  – (e.g. require students to multitask and then reflect on how that impeded learning)
• Require students to maintain lists of what they have learned when it comes to their process of learning
  – (e.g. “While working on this project, I learned __. Next time I will__.”)

www.developingchild.harvard.edu
Pop Quiz: EF in the classroom...

Working Memory

Cognitive Flexibility

Inhibitory Control

What cognitive process is involved:

Please write down the sentence I am about to say: “...”
Pop Quiz: EF in the classroom...

What cognitive process is involved:

Working Memory

Cognitive Flexibility

Inhibitory Control

You have asked your students to sort words by initial sounds and then by rhyming patterns.

bat  cat  boy

coy  sat  soy
Pop Quiz: EF in the classroom...

- Working Memory
- Cognitive Flexibility
- Inhibitory Control

What cognitive process is involved:

Generate as many meanings as you can for the word ‘wave.’
Cognitive Flexibility
Inhibitory Control

What color is each word written in?
- Blue
- Green
- Yellow
What are executive functions?

Working Memory

Cognitive Flexibility

Inhibitory Control

How are EF utilized in the classroom?

- Student planning
- Student organization
- Student work completion
- Switching tasks
- Student goal setting/reaching goals
- Making decisions
- Remembering/Recalling
- Using/applying strategies
- Timeliness
- What else?
EF and Literacy

Working Memory

- Letter recognition and word reading
- Comprehension of increasingly longer/more complex texts
- Spelling, handwriting, and written expression
- Retain text ideas, make note of causal links between them, and update understanding as he or she encounters new ideas in text
Working Memory & Fluency

This is harder for you to comprehend because there is greater space and therefore time between each word.

Your lack of fluency makes it harder to construct and retain meaning.
### Cognitive Flexibility

| Readers shift attention between textual elements and goal-driven skills like rereading, skimming, finding a specific answer | Metacognition (monitoring comprehension) | Multiple Uses: Multiple meaning words; figurative language; etc. | Shift between letter sounds and word meaning. | Take on multiple perspectives (fictional and argumentative texts) |
Figurative Language and EF

Metaphors

BOREEG
He is Fast
He is Tall
He is Brown
He is Slow

EXCITING!
When he decided to go to a movie
Comedians are my favorite actors

It is silly

You are sweet
You are the ice of my Leather

He is Short

He is good family

Please don't be a snow cat
Please don't be a monkey on

John is Short
She is a slug running around
Inhibitory Control

- Allows readers to make accurate inferences
- Synthesize information across prepositions
- Suppress irrelevant information
Introduce abstract concepts as concretely as possible.
To Support Perspective Taking

| GOAL: To support students’ ability to take different perspectives |
| CONTENT: To develop their understanding of cultural systems |

| Personal: Identify personal culture |
| Complex: Visible and Invisible Culture |
| Historical: Political Cartoons |

**Sentence Scramble Directions:**
1. Take all the cards that are the same color.
2. Create a real question.
3. Find the same question on your worksheet.
4. Answer the question in your worksheet.
5. Put the cards back. Take a new color.
4) What are teacher practices and instructional routines designed to enhance student learning?
During Planning:

If a student exhibits weaknesses with:

- Cognitive Flexibility
- Working Memory
- Inhibitory Control

what supports/strategies can you use to make [insert objective] more accessible and universally designed?
UDL Creates Expert LEARNERS who are:

a) strategic, skillful and goal directed;
b) knowledgeable, and
c) purposeful and motivated to learn more.

Source: [http://www.udlcenter.org/](http://www.udlcenter.org/)
Universal Design for Learning

Recognition Networks
The "what" of learning

Strategic Networks
The "how" of learning

Affective Networks
The "why" of learning

How we gather facts and categorize what we see, hear, and read. Identifying letters, words, or an author's style are recognition tasks.

Planning and performing tasks. How we organize and express our ideas. Writing an essay or solving a math problem are strategic tasks.

How learners get engaged and stay motivated. How they are challenged, excited, or interested. These are affective dimensions.
Provide Options for Executive Functions

6.1 Guide appropriate goal-setting
6.2 Support planning and strategy development
6.3 Facilitate managing information and resources
6.4 Enhancing capacity for monitoring progress
Universal Design for Learning

Equity is when every student has what they need to succeed.

Does every student have an access point in your lessons?
<table>
<thead>
<tr>
<th>Identified Desired Results</th>
<th>Desired Results</th>
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<tbody>
<tr>
<td>(Big Ideas and Skills)</td>
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<td>Standards:</td>
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<td></td>
<td>- Prioritize Standards</td>
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<td></td>
<td>- Unpack Standards</td>
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<tr>
<td></td>
<td>- Prioritize and Identify Content Skills</td>
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<tr>
<td></td>
<td>- Skills</td>
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<td></td>
<td>- Meet the students' needs, understand, and be able to do?</td>
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<td></td>
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<tr>
<td>Determine Acceptable Evidence</td>
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<tr>
<td>(Performance Tasks)</td>
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<td>Observable</td>
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<td>Measurable</td>
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<td>Varied</td>
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<tr>
<td>Plan Learning Experiences and Instruction (Learning Events)</td>
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<td></td>
<td>How will you have students demonstrate a skill?</td>
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<td></td>
<td>How will you have students demonstrate content?</td>
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<td></td>
<td>Learning Plan</td>
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<td></td>
<td>Sequential</td>
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<td></td>
<td>Build in review and repetition</td>
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<td></td>
<td>Multisensory</td>
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<td></td>
<td>Support Executive Function</td>
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<td>Bloom's Taxonomy</td>
</tr>
</tbody>
</table>

But it will be reeeeeeally fun!

Avoids great individual lessons that don’t connect to the bigger goal.
Classroom Environments

2 ways to look at this:

Intentional planning to simultaneously target EF and objectives:
● In addition to my literacy/content skills, this game is intentionally targeting turn-taking, active listening, cognitive flexibility, and organization of writing.

Reflect on the hidden and intentional demands you’re placing on your students:
● I made this game about building paragraphs and it was hard. I didn’t realize how much cognitive flexibility was required to engage meaningfully.
Self-Regulated Strategy Development

These stages can be reordered, combined, modified, and repeated, based on students’ needs.

1. Develop background knowledge
2. Discuss it
3. Model it
4. Memorize it
5. Support it
6. Independent performance
SRSD’s 6 steps have:

**Goal Setting** → with support students set personal writing goals

**Self-instruction** → memorize mnemonics

**Self-monitoring** → activating prior knowledge to build schema knowledge and compare prior knowledge to what is being written

**Self-reinforcement** → teacher models how to use strategy, writing strategy often includes self-statements (“I”), independent practice
It's not *just* a game...

<table>
<thead>
<tr>
<th>Planned Demands:</th>
</tr>
</thead>
<tbody>
<tr>
<td>● What content is being reviewed?</td>
</tr>
<tr>
<td>● What are the Literacy Objectives?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hidden Demands:</th>
</tr>
</thead>
<tbody>
<tr>
<td>● What Executive Functions are utilized?</td>
</tr>
<tr>
<td>● What prerequisite skills are necessary?</td>
</tr>
</tbody>
</table>
Activity A: Build a Paragraph

**Literacy Skills:**
- Introduce a topic clearly and group related information in paragraphs
- Recognize when irrelevant evidence is introduced

**“Build That Paragraph Game” Directions:**
1. Pull a topic card.
2. You must build a paragraph about that topic.
3. Take turns. Player 1 pulls a sentence and reads it out loud.
4. Decide if that sentence is on- or off-topic.
   a. On-topic? Place the sentence on your mat
   b. Off-topic? Place it in the discard pile.
5. Other players: You can steal the sentence if it supports your topic before it goes in the discard pile.
Activity B: Current Event Smackdown

**Smackdown Game Directions:**
1. Teacher prepares 5W cards. face up in the middle of the table.
2. Teacher prepares detail cards from actual current event.
3. In a small group, students listen as a detail from the article is read aloud.
4. Students SMACK the 5W in the middle it answers.

**Literacy Target Skills:**
- Identify main ideas of nonfiction text
- Summarize nonfiction text
Activity C: Figurative Language

- Matching
- Sorting
- Memory
- BINGO
- Silly Sentences

Literacy Target Skills of Memory Game:
- Identify figurative language expression with its literal meaning
Activity D: MEGAWords*

Literacy Target Skills:
- decode and spell multisyllabic words
- self-monitor for meaning and accuracy

*The Megawords series consists of eight Student Books and accompanying Teacher’s Guides that provide a systematic approach to decoding, spelling, and understanding the multisyllabic words encountered from the fourth grade on.

If a teacher says:

“Well, I tried _[insert skill or content objective]_ and it didn’t work. What do I do now?”

Step 1: Make a list of the demands...**ALL the demands.**

Step 2: Walk through potential hurdles:

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>Did you provide written directions?</th>
<th>Did you isolate the new skill being taught?</th>
<th>Did you carefully scan the text for prerequisite skills?</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESPONSE</td>
<td>NO? → You hijacked their working memory before the activity even began</td>
<td>NO? → His challenges with inhibition put him at a disadvantage because he had to manage excessive extraneous information</td>
<td>NO? → Her comprehension may have been compromised by the requirement to use cognitive flexibility on figurative language, multiple perspectives, or multiple meaning words</td>
</tr>
<tr>
<td>SOLUTION</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Recommendations

1. Know the literacy demands of your discipline
2. Actually DO everything you ask your students to do in advance:
   a. Complete analyse for all literacy and EF demands
3. Use your analysis to make hidden demands visible or intentional and supported
4. Find your access point: What is the most concrete way to begin?
5. Build in opportunities for students to work together
Resources & References


