

# Improve Executive Function, Language, and Narrative Skills through Movement Activities for Preschoolers

*Kelly Vess, MA, CCC-SLP*

MSHA Annual Convention  
Saturday, March 26<sup>th</sup>, 8:30AM-10:30AM  
@KellyVessSLP Website: [KellyVessSLP.com](http://KellyVessSLP.com)  
Podcast: The Preschool SLP



# About Kelly

- Full-time preschool SLP
- Researcher
- Instructor
- Author
- Speaker
- Podcaster

## Financial Disclosures:

- Author of 'Speech Sound Disorders: Comprehensive Evaluation and Treatment,' for which she receives royalties

## Non-Financial Disclosures:

- Podcast Host of 'The Preschool SLP'
- Moderator of 'SLP Creators & Creative SLPs' Facebook Group



# Today's Goals

- Part I. Embed speech, language, and literacy targets into activity-based intervention movement activities.
- Part II. Provide multi-modal cueing to effectively scaffold expressive language and narrative development.
- Part III. Create engaging, purposeful play, goal-directed, evidence-based Task-Oriented Movement (TOM) activities.



# Agenda

Background: Our Why? & What We're Going to Do About It.

Part I. 8:30-9:00: How to Select Speech Treatment Targets that Treat the Whole Child.

Part II. 9:30-10:00: How to Cueing Multimodally to Improve Outcomes.

Part III. 10:00-10:30: How to Create Educationally-Rich Task-Oriented Movement Activities that Elicits Complex Communication Skills.





# Background

## Communication Impairments Require a Multifaceted Approach

- Why are we here?
- What are we going to do about it?



# Why are we here?

Communication impairments require a multifaceted approach:

- Attention
- Behavior
- Executive Function
- Language
- Literacy
- Math
- Motor Skills
- Socialization



Attention

What does a multi-faceted approach look like?  
Meet TOM Activities!

Socialization

Gross Motor

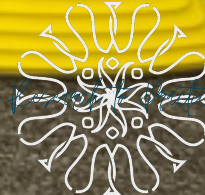
Math

Literacy

Symbolic Play

Fine Motor

Language



# *Let's Talk Executive Function*

Looking at the '5 Little Ducks' TOM Activity, what is the...

## Pretend Play Occupation:

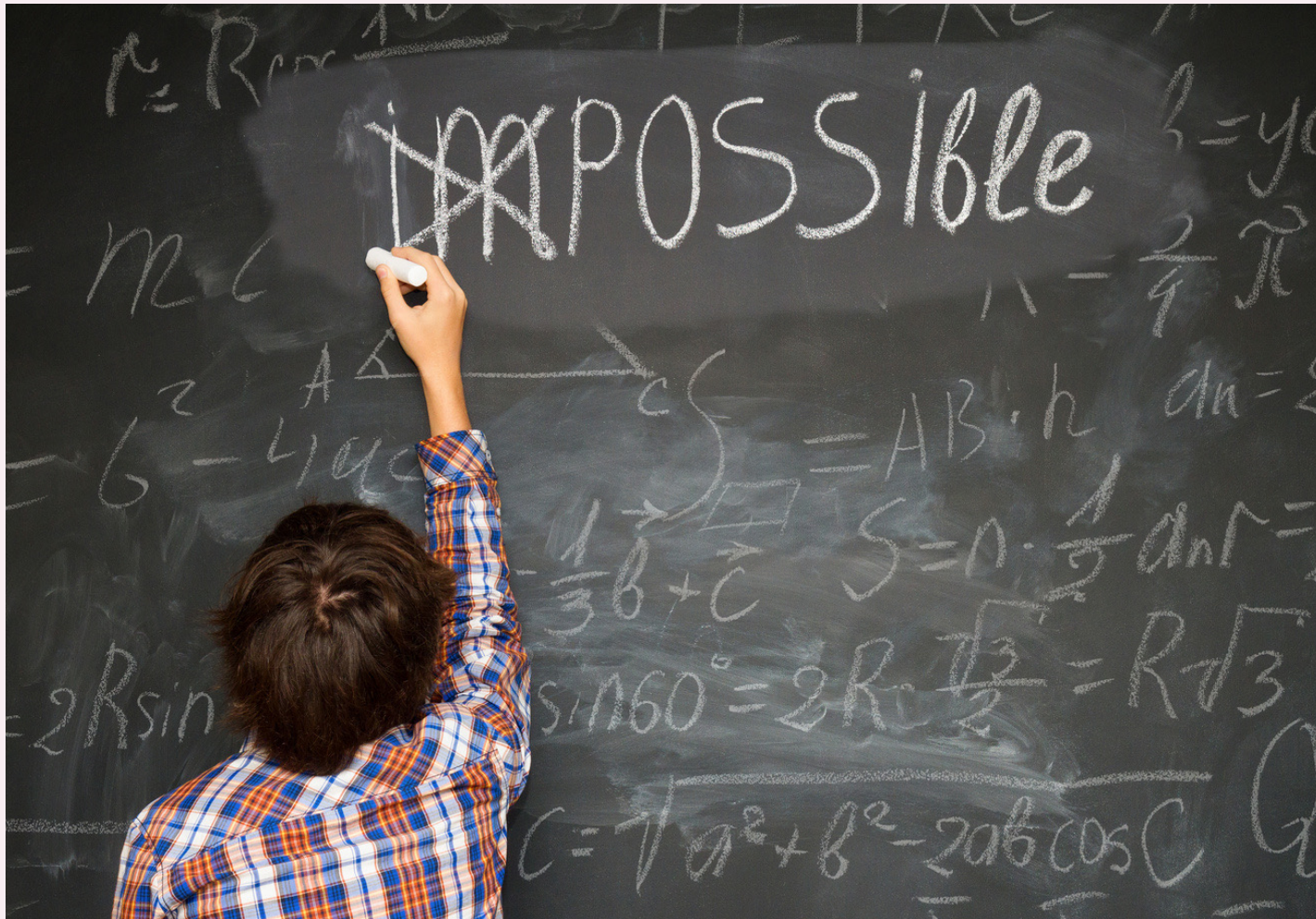
- Problem:
- Plan:
- Action:
- Check:



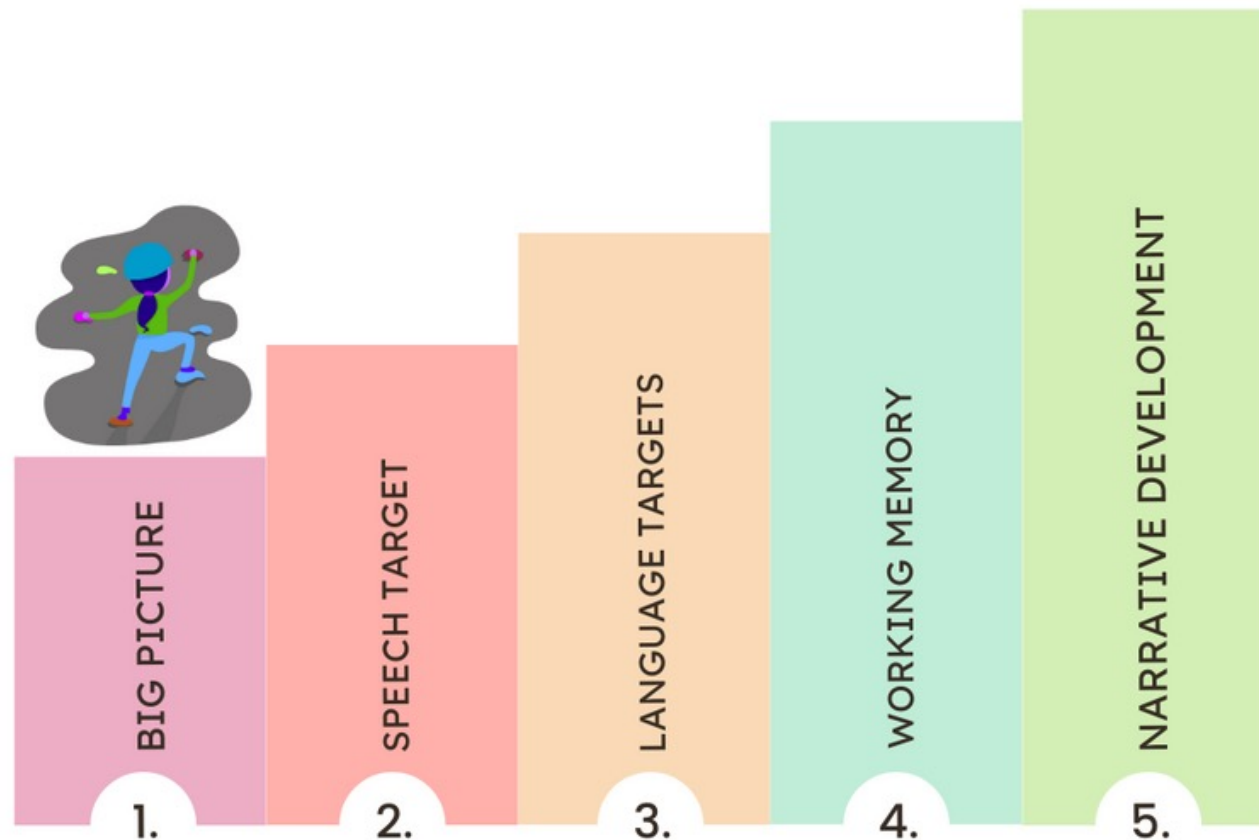


# Part I: 8:30-9:15 AM

Selecting Treatment Targets that Globally Maximize Gains



# Part I. Select Challenging Treatment Targets to Create Change



# Challenge Creates Change

The latest research indicates that more complex treatment targets create greater change in the areas of...

- Attention
- Executive Function
- Language
- Literacy
- Motor Skills
- Speech





# What does a multi-faceted treatment target look like?

Attention

working memory

Language

complex syntax

Literacy

print referencing  
first, next, then...

Speech

3-element blends

First, can you scrape it to me?



Next, can you splash it to me?



Then, can you drop it to me

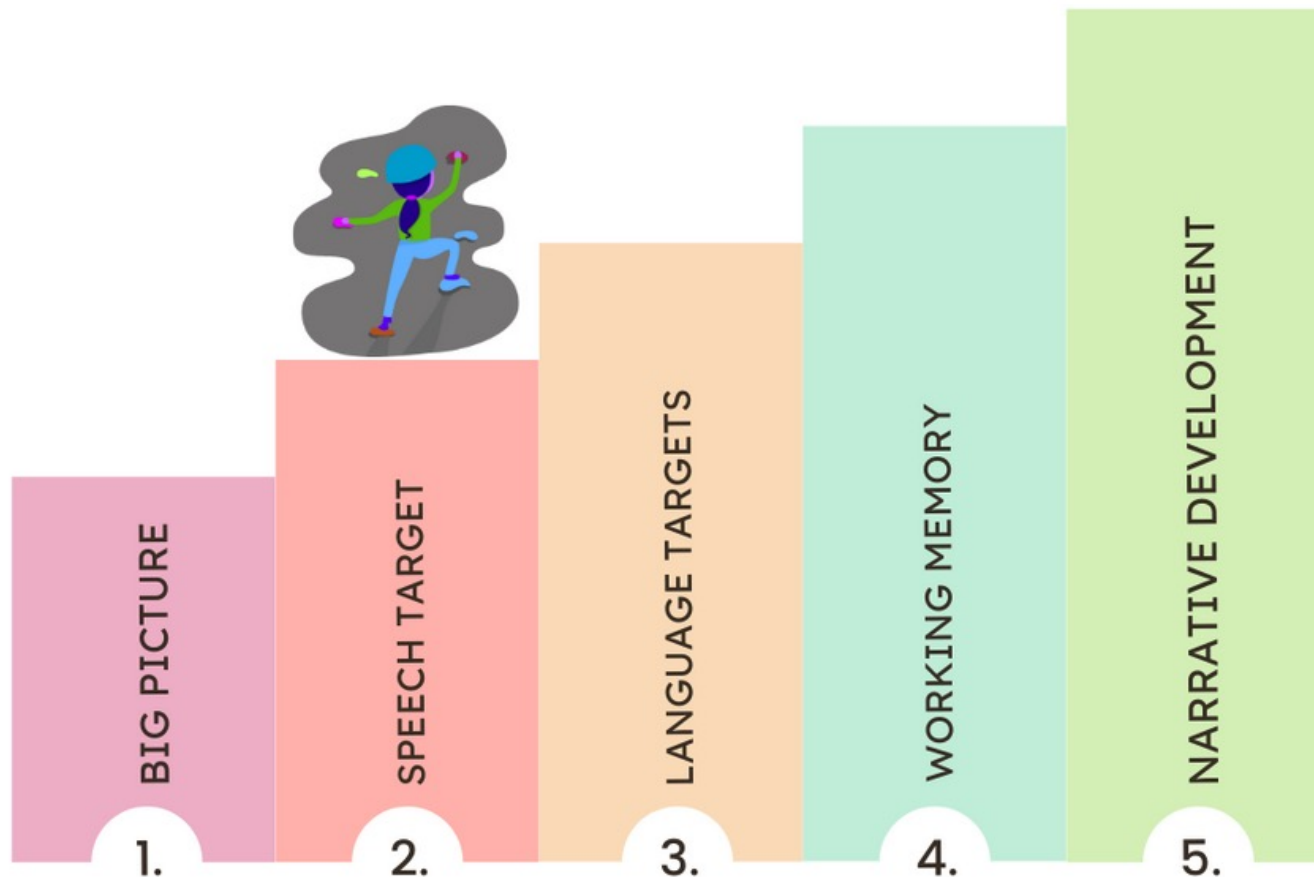


because I have angry dog teeth?





# Part I. Select Challenging Treatment Targets to Create Change



*Speech Targets:  
Start High!*

**3-CCC Clusters**

**2-CC Clusters**

**Affricates**

**Fricatives**

**Stop Consonants**



# What does a multi-faceted treatment target look like?

## Speech

- scrape
- splash
- drop
- angry
- teeth

First, can you scrape it to me?



Next, can you splash it to me?



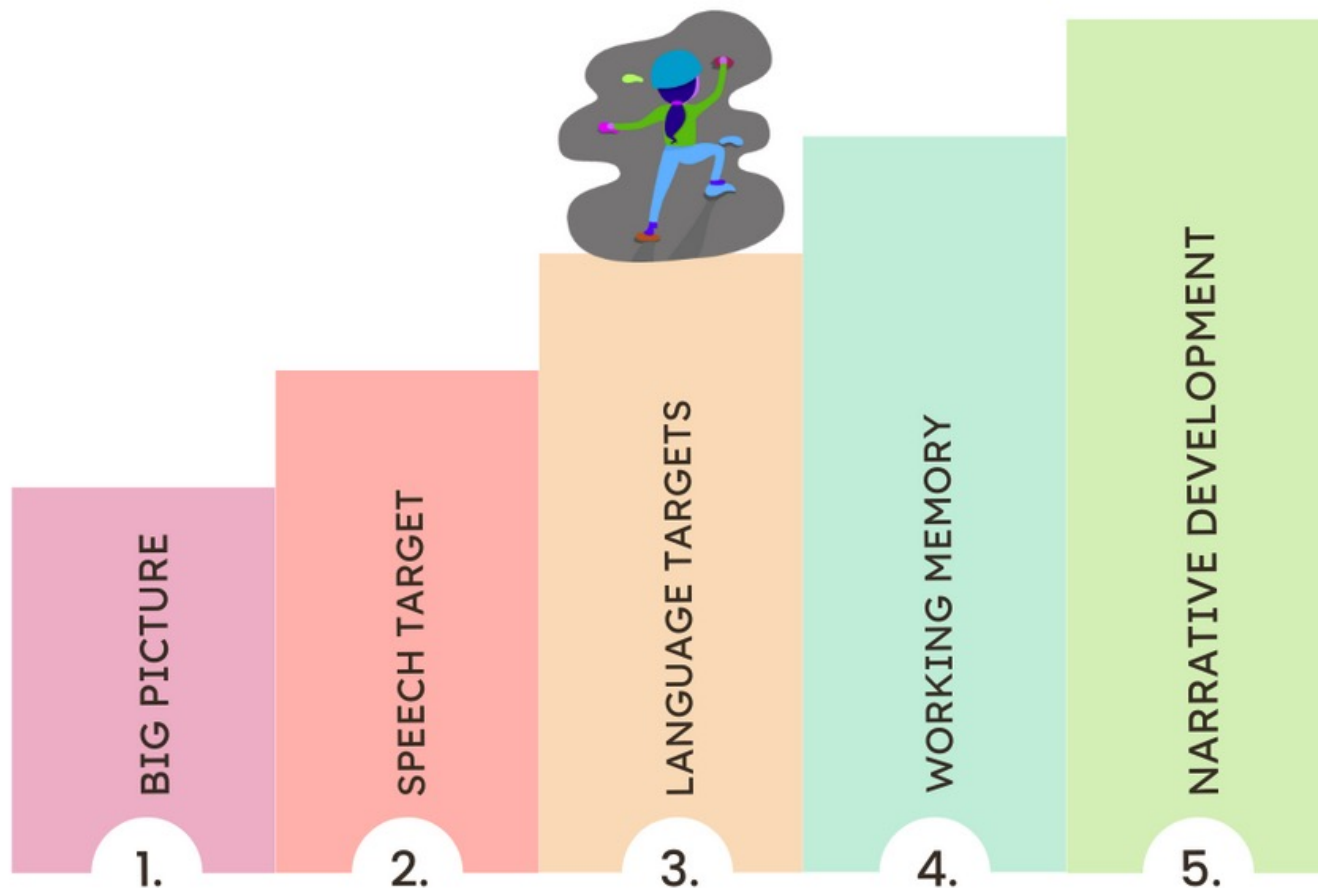
Then, can you drop it to me



because I have angry dog teeth?



# Part I. Select Challenging Treatment Targets to Create Change



*Language Targets:  
Start High!*

**Narratives**

**Complex Sentences**

**Sentences**

**Phrases**

**Single Words**





# What does a multi-faceted treatment target look like?

## Language

- Narrative
- Complex Sentences
- Tier 2 Vocab: first, next, then...

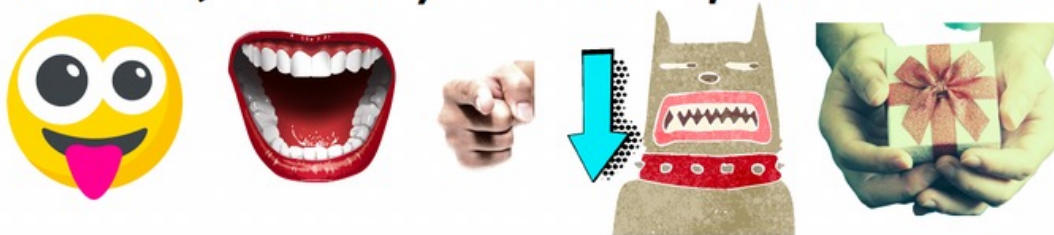
First, can you scrape it to me?



Next, can you splash it to me?



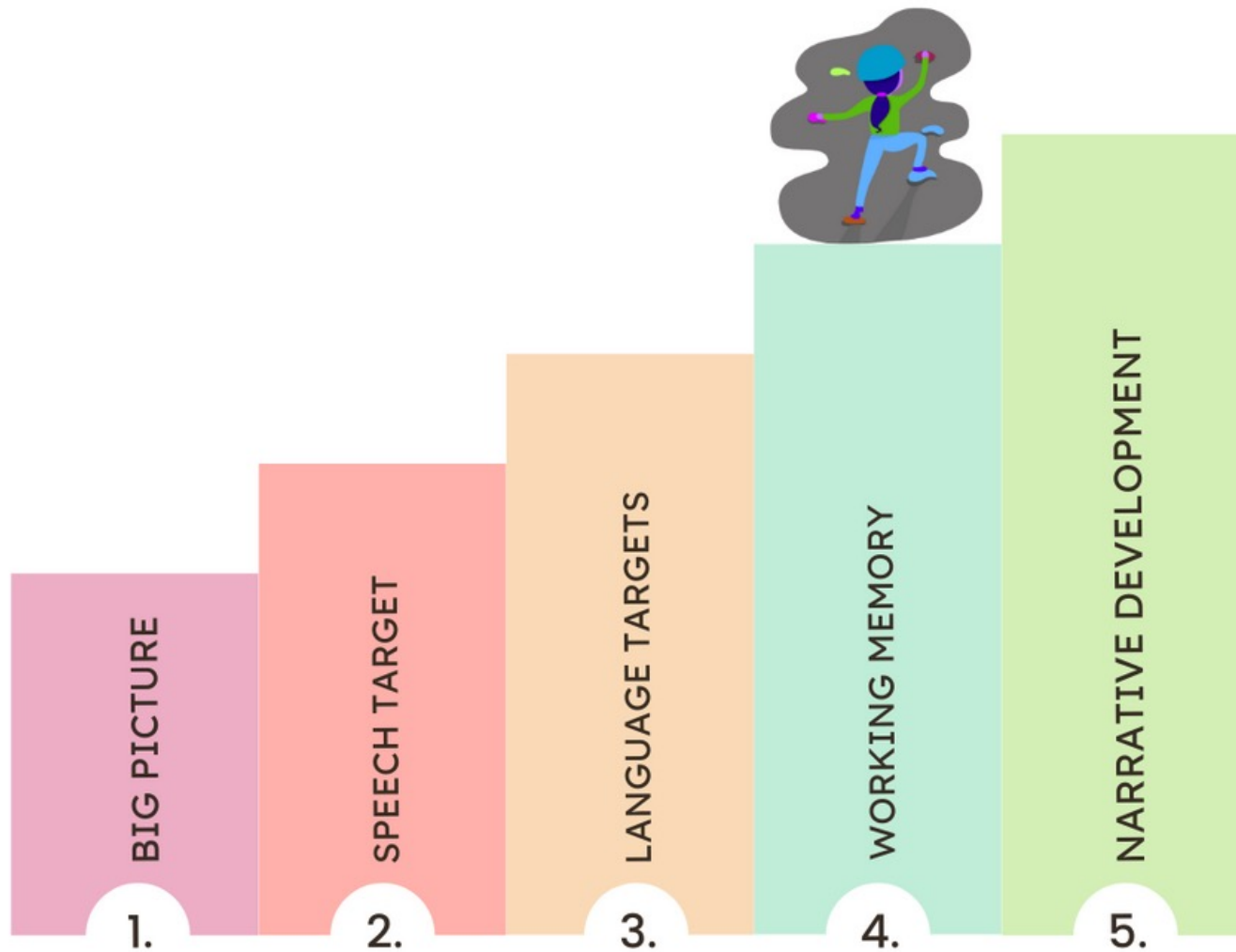
Then, can you drop it to me



because I have angry dog teeth?



# Part I. Select Challenging Treatment Targets to Create Change



*Working Memory:  
Start High!*

**Multiple Sentences**

**Expanded Sentences**

**Sentences**

**Words**

**Syllable**





# What does a multi-faceted treatment target look like?

Attention

Working Memory:  
Hold and  
sequence  
multiple pieces  
of information.

First, can you scrape it to me?

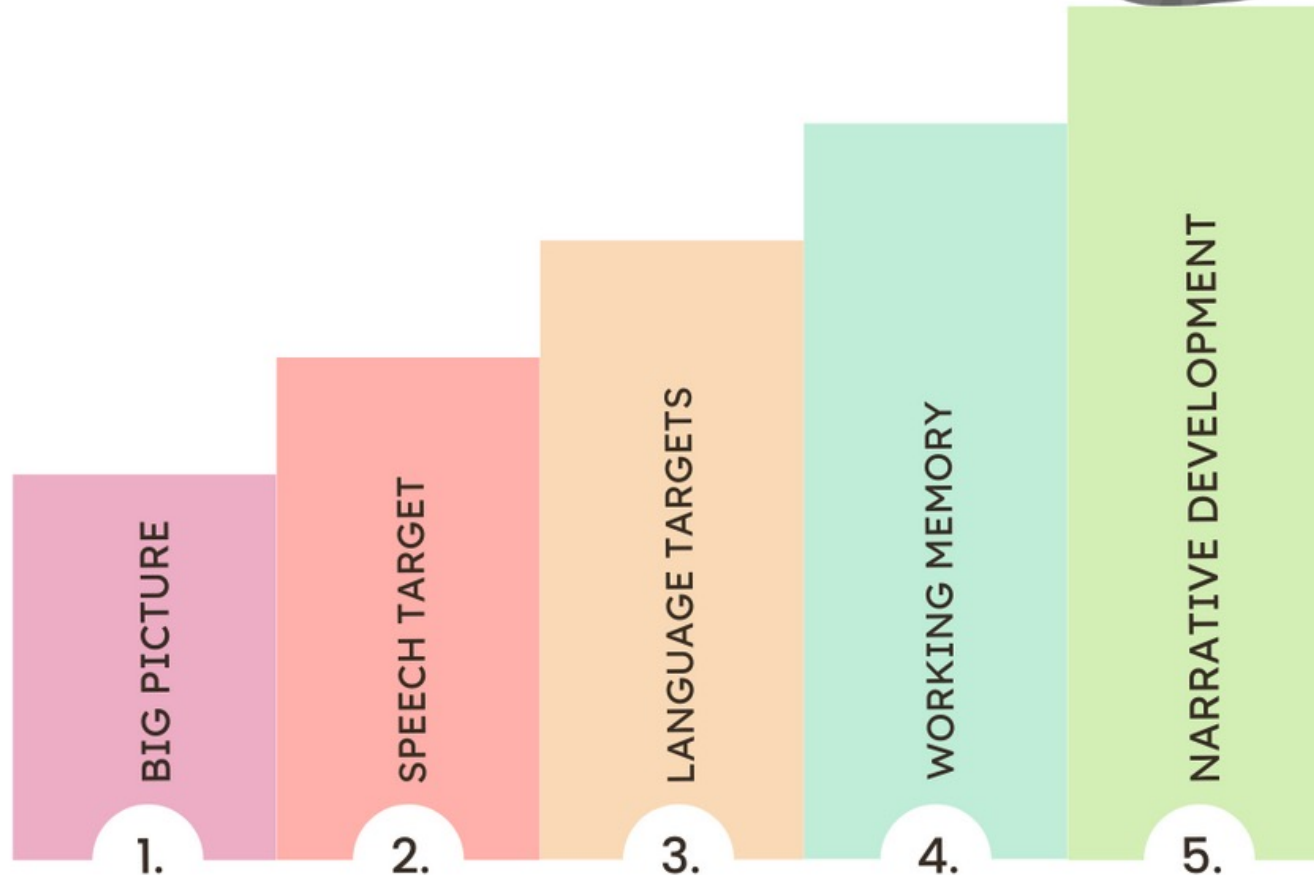
Next, can you splash it to me?

Then, can you drop it to me

because I have angry dog teeth?

B

# Part I. Select Challenging Treatment Targets to Create Change



*Developing Narratives:  
Start High!*

**Narrating**

**Sequencing**

**Connecting**

**Listing**

**Labeling**



# What does a multi-faceted treatment target look like?

Narrative

Sequencing:  
Multiple ideas are  
organized  
temporally (first,  
then, next, lastly).

First, can you scrape it to me?

Next, can you splash it to me?

Then, can you drop it to me

because I have angry dog teeth?



# *Task-Oriented Movement in Action!*



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'

# Executive Function

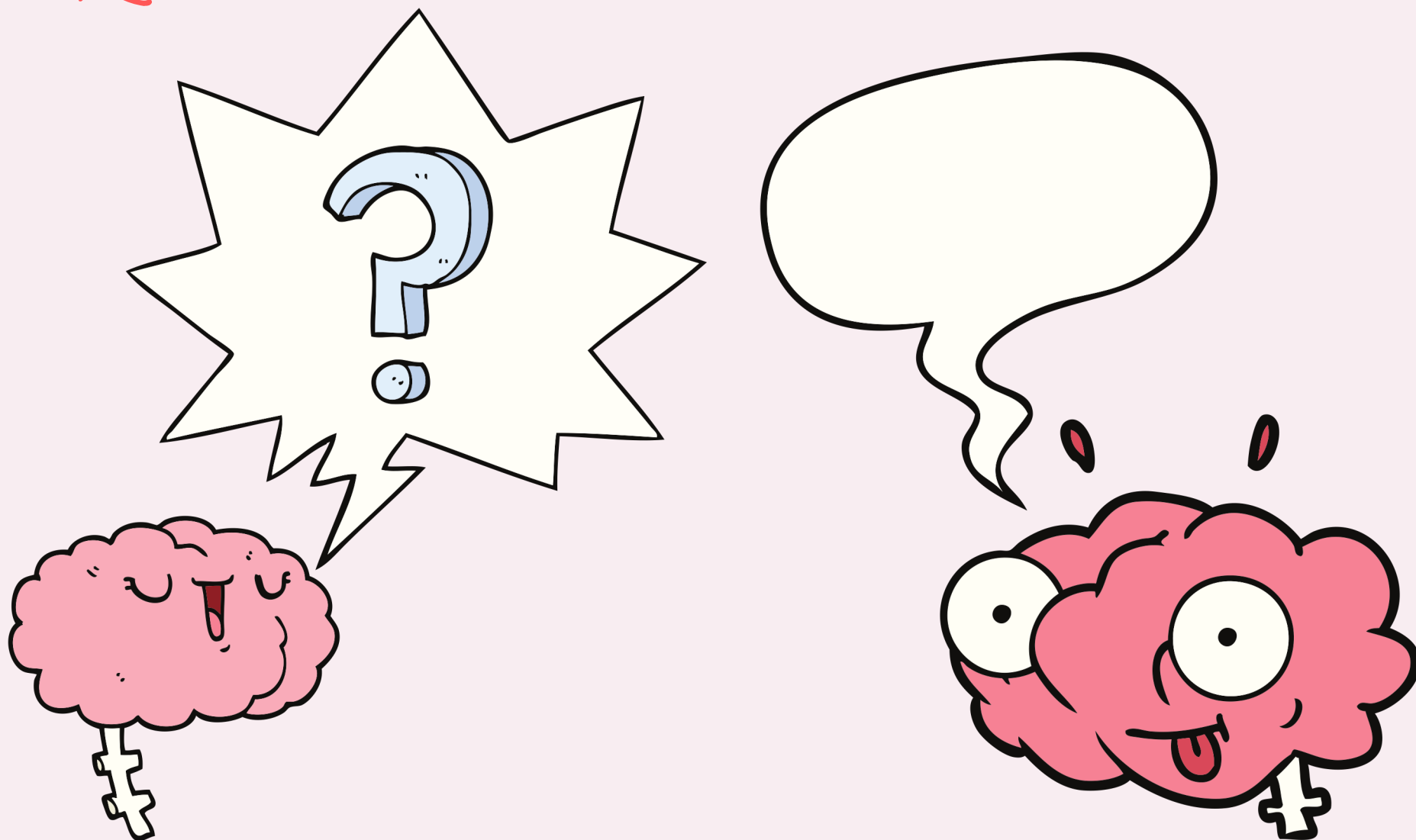
Looking at the Camper Activity, what is the...

## Pretend Play Occupation:

- Problem:
- Plan:
- Action:
- Check:



# Questions & Comments



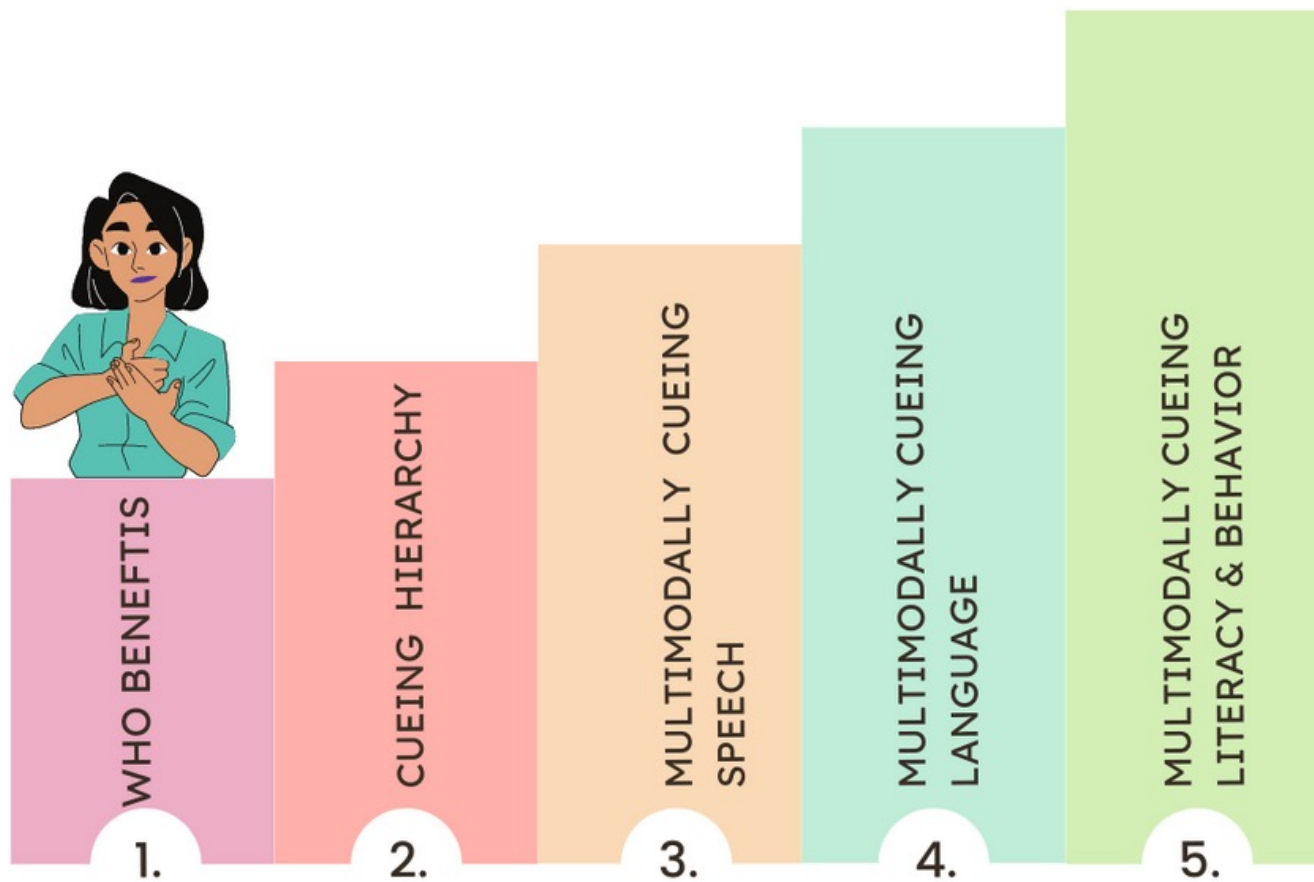
# Part II: 9:15-10:00 AM

Multi-modal cueing to improve verbal expression



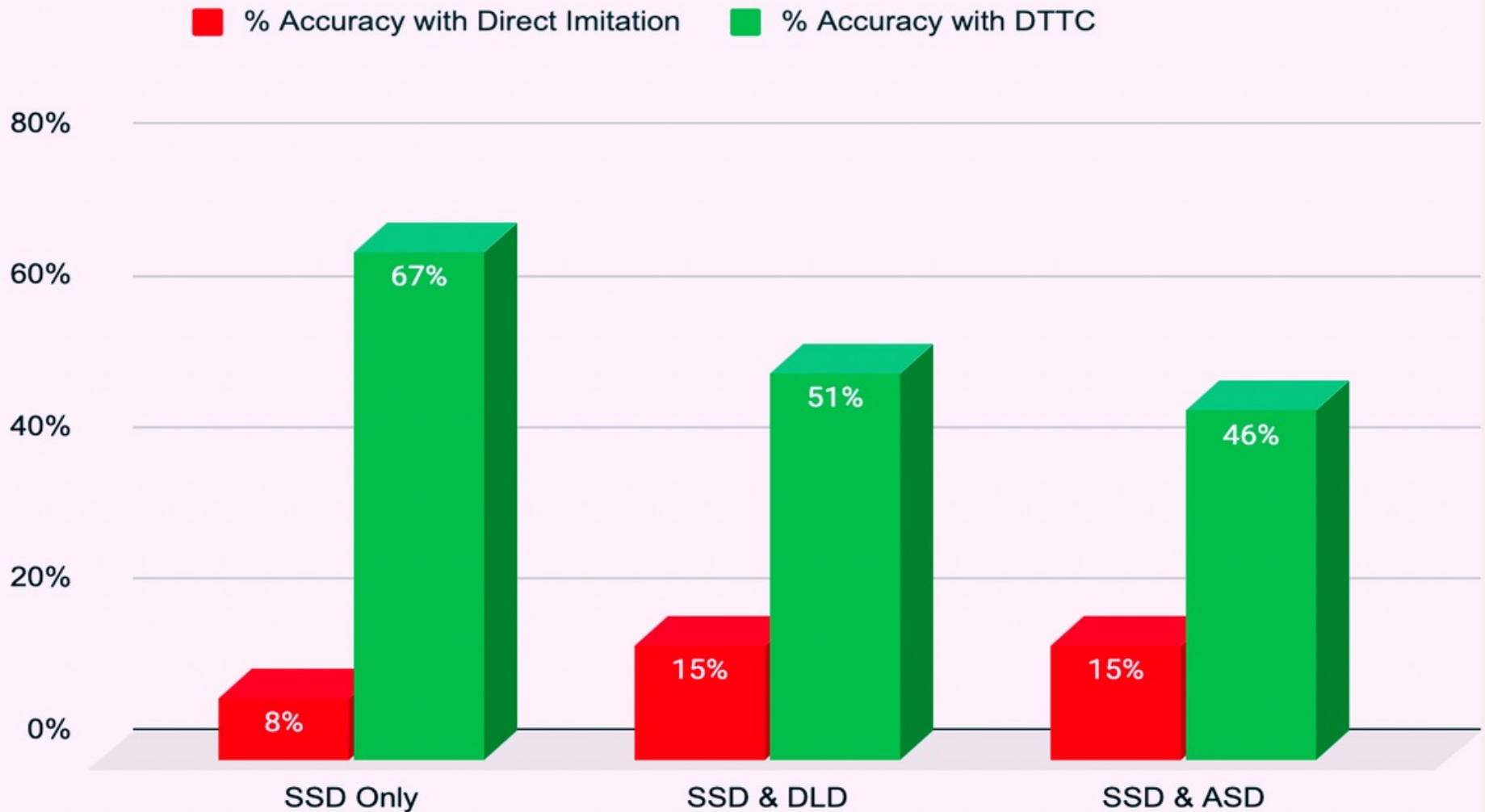


## Part II. Multimodal Cueing with Dynamic Temporal, Tactile Cueing



# Is Dynamic Temporal Tactile Cueing Effective for Diverse Populations?

Preschoolers' Percentage Accuracy in Imitating Consonant Cluster Words with an Imitation Prompt vs. Dynamic, Temporal, and Tactile Cueing (N=27)



# Dynamic, Temporal, and Tactile Cueing (DTTC)

## What is DTTC: Dynamic, Temporal, and Tactile Cueing

- Cueing is based on a most-to-least prompting hierarchy using slowed speech.
- Cueing is based on a child's moment-to-moment performance to ensure a minimal 80% accuracy rating.
- Cues provided could be temporal (visual-spatial), tactile (touch), auditory or a combination of the three.



# Dynamic, Temporal, and Tactile Cueing (DTTC) cont.

Levels of Support: Dynamic, Temporal, and Tactile Cueing

Level I. Simultaneous

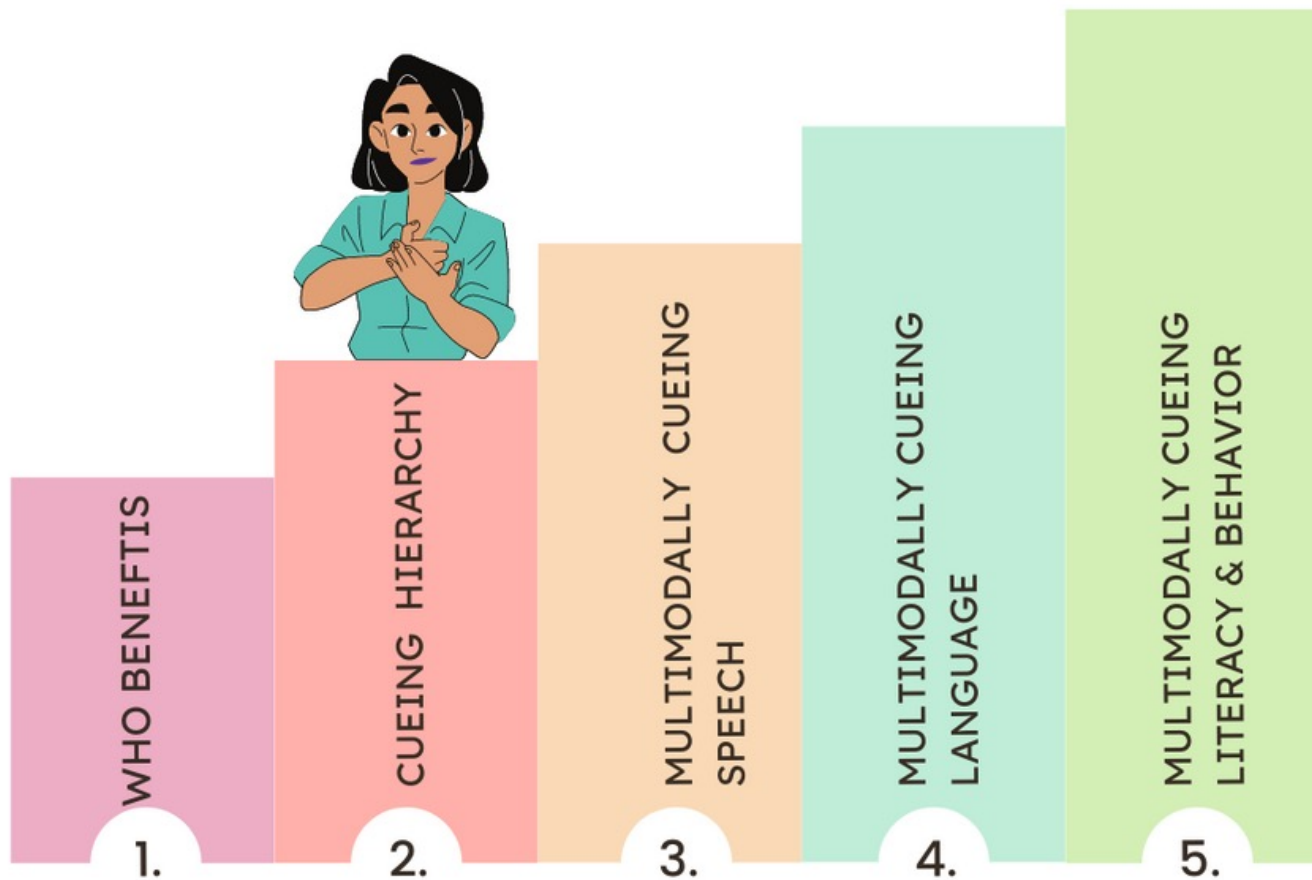
Level II. Direct

Level III. Delayed

Level IV. Spontaneous



## Part II. Multimodal Cueing with Dynamic Temporal, Tactile Cueing



*Begin with the End in Mind!*

*How-To  
Fade Cues*

**Imagery**

**Visual**

**Temporal**

**Tactile**

**Auditory**



# Sample DTTC Goals: Most-to-Least

Annual Goal: XXX will produce 'skr' at the paragraph level provided Dynamic, Temporal, Tactile Cueing (DTTC) with gestural and/or imagery cues provided to ensure a minimal 80% accuracy level as measured by an SLP's systematic observation.

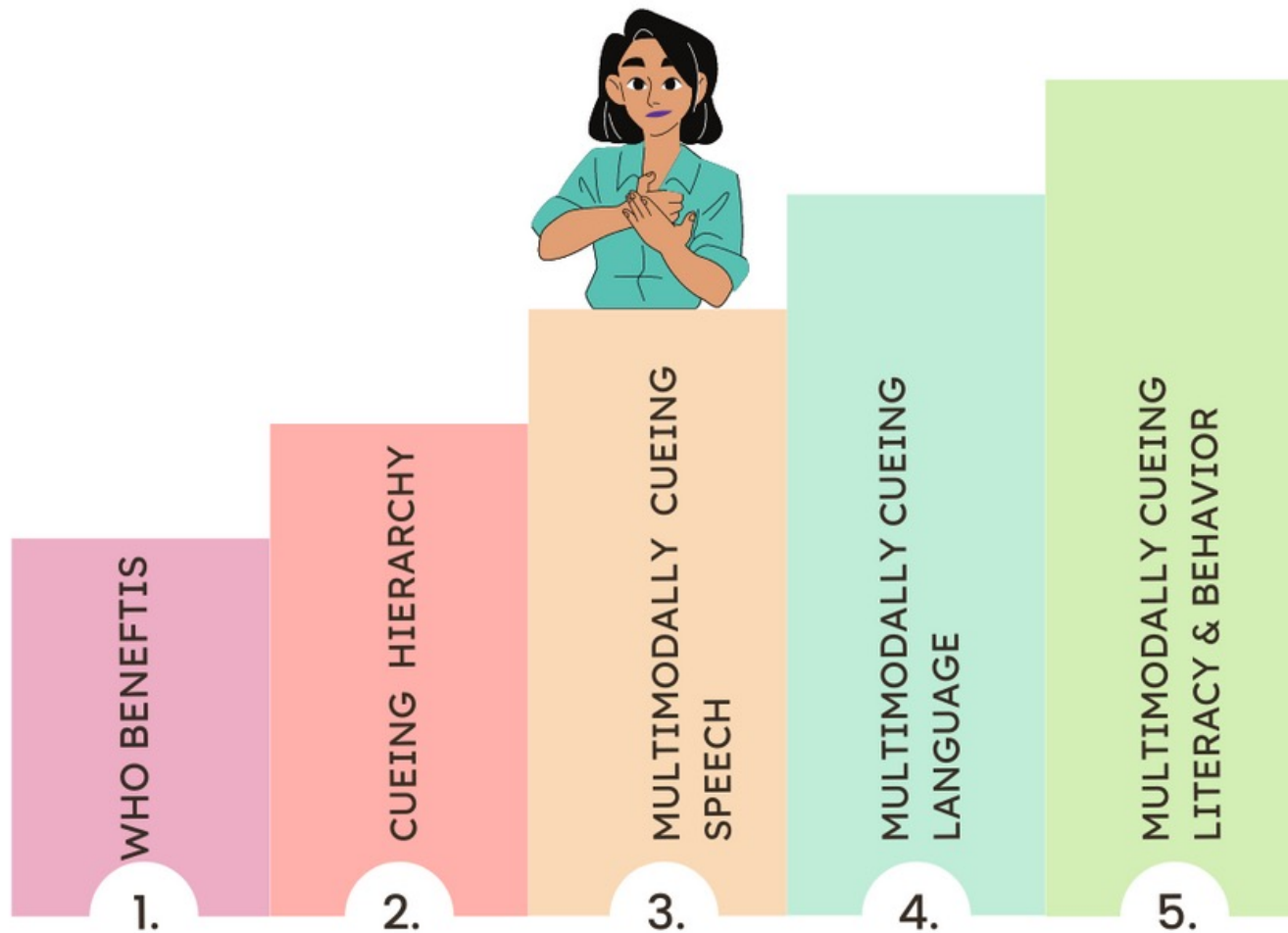
Objective 1: XXX will produce 'skr' at the paragraph level provided Dynamic, Temporal, Tactile Cueing (DTTC) with auditory, visual, gestural, and/or imagery cues provided to ensure a minimal 80% accuracy level as measured by an SLP's systematic observation.

Objective 2: XXX will produce 'skr' at the paragraph level provided Dynamic, Temporal, Tactile Cueing (DTTC) with visual, gestural and/or imagery cues provided to ensure a minimal 80% accuracy level as measured by an SLP's systematic observation.





## Part II. Multimodal Cueing with Dynamic Temporal, Tactile Cueing





# Temporal Cues for Consonants!



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'

# Creating Incompatible Temporal Cues for Common Sounds

What are some incompatible temporal cues for these sounds?

/k/ & /g/:

/s/:

/l/:

/r/:

/dz/:



# Temporal Cueing in Action!



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'

# Benefits of Motor Imitation

- Improve attention: when the body checks in, the brain checks in.
- Doubles mirror neuronal activity for empathy development.
- Improves foundational skills necessary for social skill development. Peers communicate with peers through by imitating each others' movements.
- Increases how quickly and deeply concepts are learned.



# Temporal Cueing: Without Auditory



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'



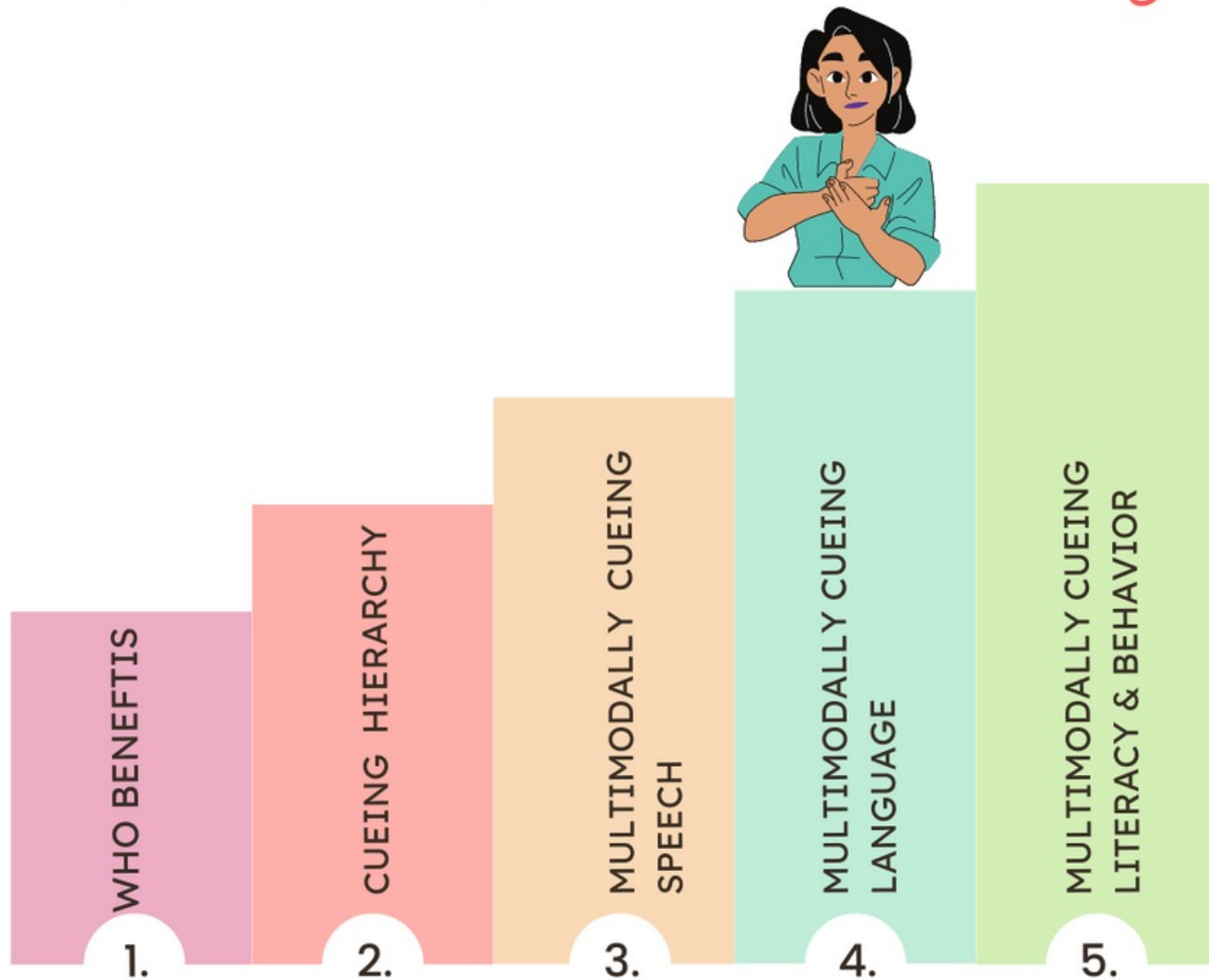
# Benefits of Removing Auditory Cue

Child becomes responsible for:

- Leading the learning experience.
- Ideation of language concepts.
- Word-retrieval.
- Working memory of remembering and sequencing multiple pieces of information.
- Motor programming, planning, and execution.



## Part II. Multimodal Cueing with Dynamic Temporal, Tactile Cueing



# Applying DTTC to Language

Levels of Support: Dynamic, Temporal, and Tactile Cueing

Level I. Simultaneous: Speaking sentences together with maximum cues.

Level II. Direct: Modeling words one-by-one.

Level III. Delayed: Modeling phrases and sentences.

Level IV. Spontaneous: Child is producing language independently.

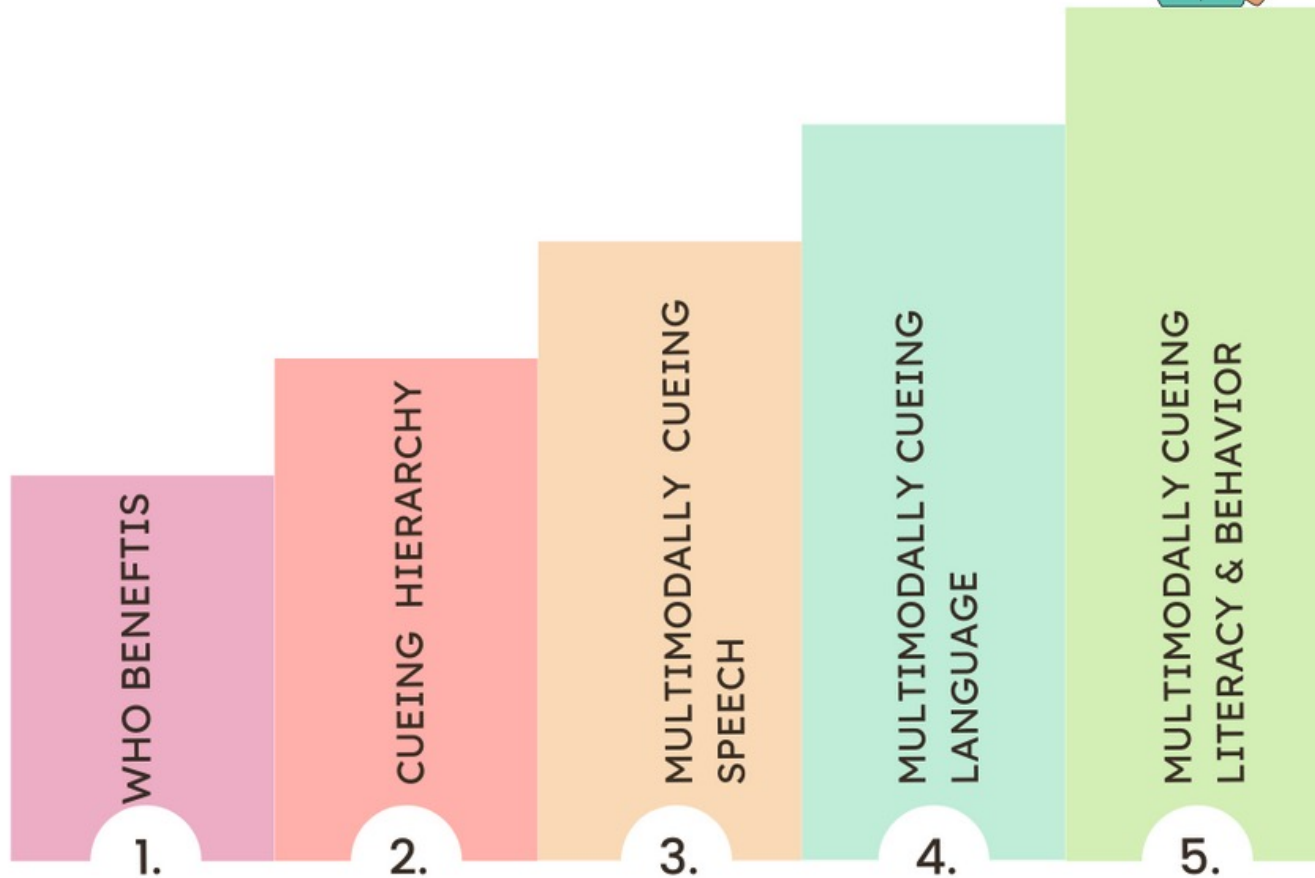


# *DTTC for Language in Action!*



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'

## Part II. Multimodal Cueing with Dynamic Temporal, Tactile Cueing





# Applying DTTC to Literacy

Levels of Support: Dynamic, Temporal, and Tactile Cueing

Level I. Simultaneous: Speaking story grammar terms together with cueing.

Level II. Direct: Modeling story grammar terms.

Level III. Delayed: Modeling followed by a delay.

Level IV. Spontaneous: Child is producing story grammar terms independently.



# Temporal Cues for Story Grammar



The **character** is \_\_\_\_\_. (**character** = both hands, pat the head 3X's)



The **setting** is \_\_\_\_\_. (**setting** = both hands, make a circle overhead)



The **problem** is \_\_\_\_\_. (**problem** = both hands, stirring cauldron in a big circle)



The **emotion(s)** is/are \_\_\_\_\_. (**emotion** = fingertips move over eyes, mimicking tears)



The **action** is \_\_\_\_\_. (**action** = both forearms rowing forward continually)



The **consequence** is \_\_\_\_\_. (**consequence** = prayer hands at chest & sweep down and away)

# Using DTTC for Story Grammar



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'

# DTTC: Social Emotional Learning (SEL)



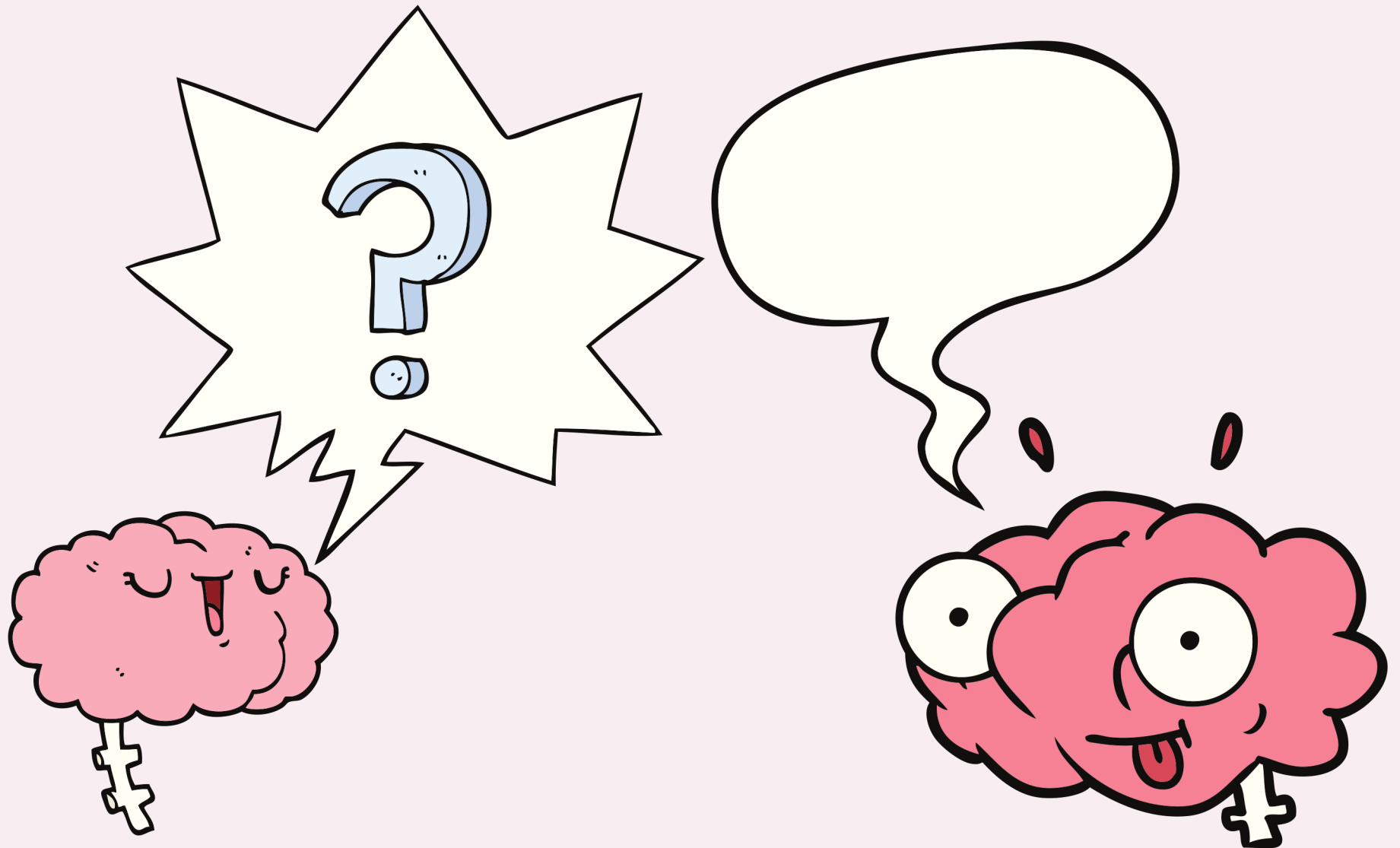
# DTTC for Prosocial Behavior!



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'



# Questions & Comments

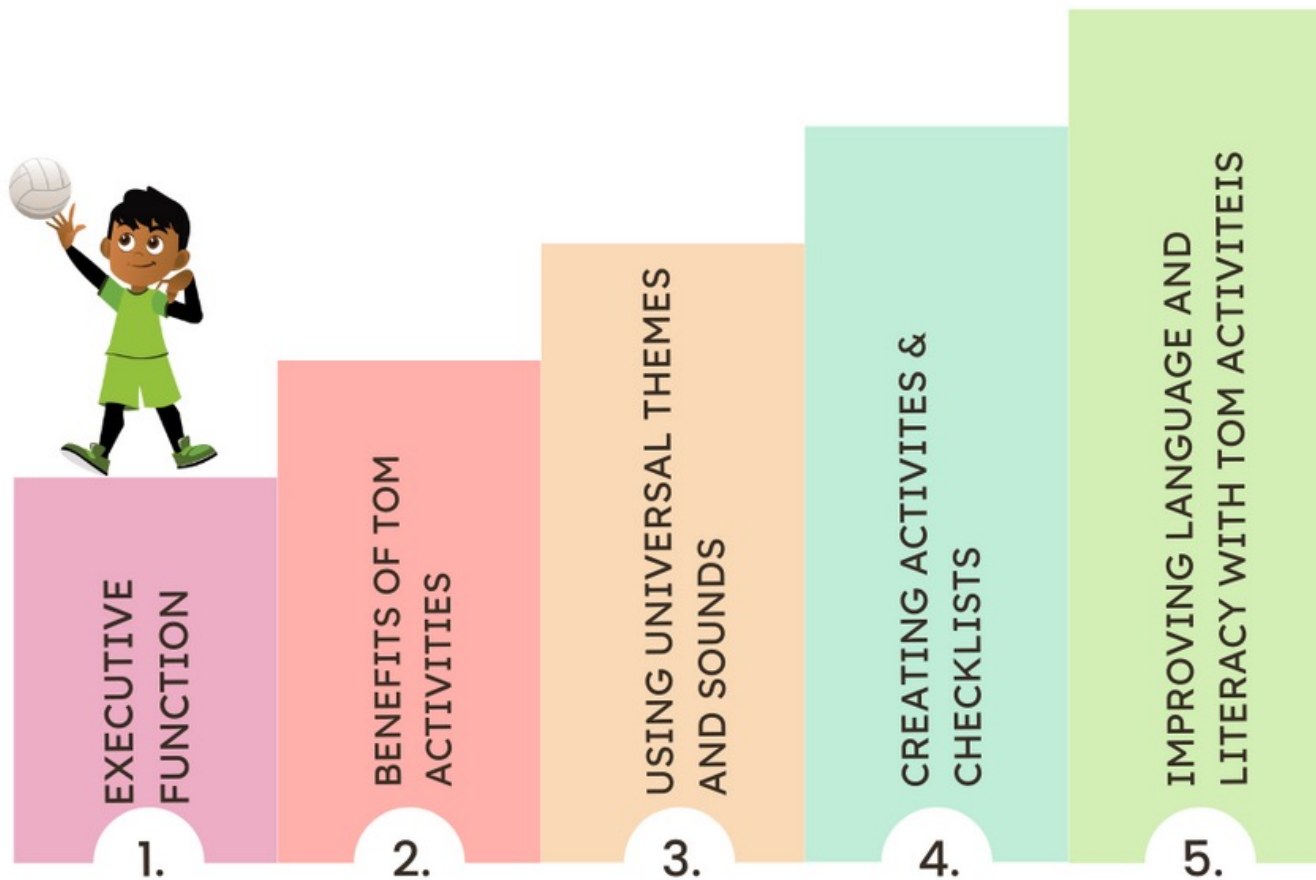


# Part III: 10:00-10:30 AM

## How to Create Task-Oriented Movement Activities



# Part III. Creating Educationally-Rich Task-Oriented Movement (TOM) Activities



# Components of Executive Function

## 3 Components of Executive Function

- Inhibitory Control: Resisting the impulse to engage in a distracting behavior.
- Working Memory: Holding information short-term while simultaneously performing other mental operations.
- Cognitive Flexibility: Ability to change or flexibly adjust with new information, demands, or priorities.

(Diamond, & Ling, 2016)



# Executive Function in Preschoolers

- Executive function most rapidly develops between ages 3-5 years.
- Preschoolers with speech sound disorders are at significantly greater risk for executive function challenges.
- Preschoolers with higher levels of screen time and more sedentary activity levels are at higher risk for executive function difficulties.

(Afshar et al., 2021; Bezerra et al., 2021; Li et al., 2021; Netelenbos et al., 2018)





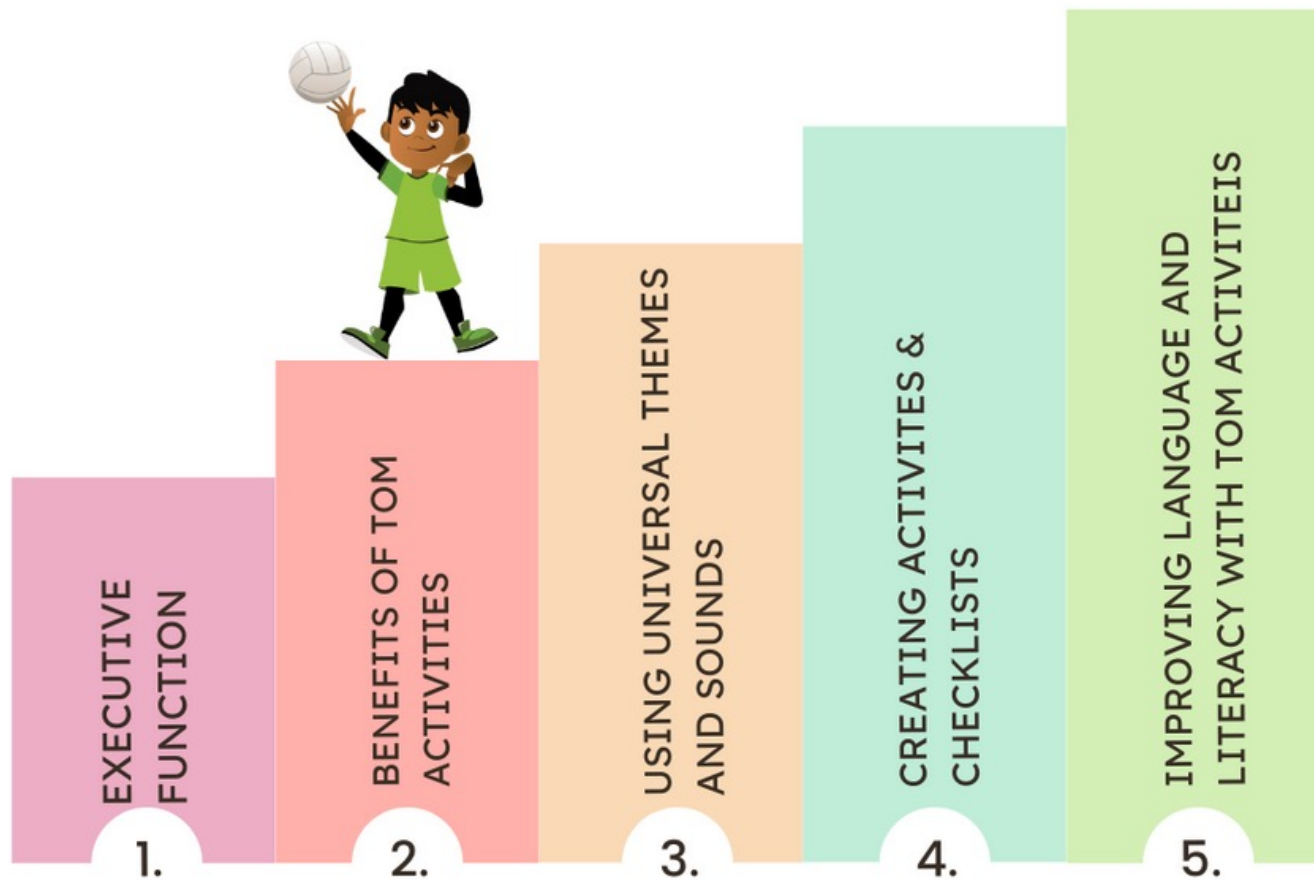
# Type of Activities that Improve E.F.

- Social-Emotional Literacy (Behavior & Emotions)
- Task-Oriented Movement (TOM) Activities
- Imaginary Play
- Narrative Activities
- Goal Directed Activities

(Dempsey, 2021; Gold et al., 2021; Li et al., 2020; Mulvey et al., 2018; Slot et al., 2017; White, & Carlson, 2021; White et al., 2021)



# Part III. Creating Educationally-Rich Task-Oriented Movement (TOM) Activities



# What are Task-Oriented Movement (TOM) Activities?

Activities in which children problem solve by independently using their bodies to accomplish purposeful, functional goals.

Systematic reviews have found TOM to be effective in improving:

- Core, gross motor, & fine motor skills
- Play skills, ADL's, independent functioning
- Executive function skills
- Narrative skills

(Mulvey et al., 2018)



# *Inhibitory Control in TOM Action!*



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'

# Executive Function

Looking at the Candlestick Activity, what is the...

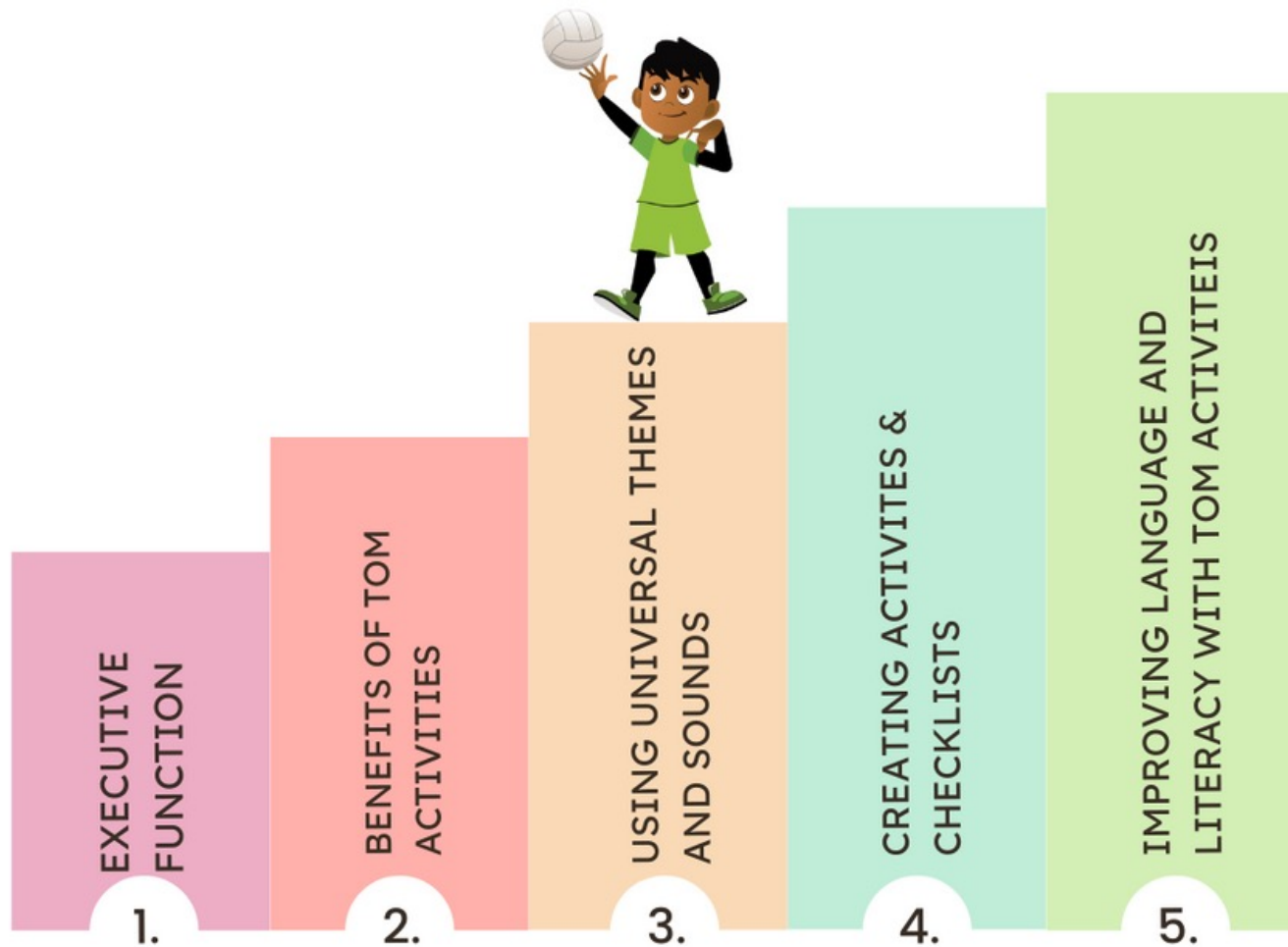
## Pretend Play Occupation:

- Problem:
- Plan:
- Action:
- Check:





## Part III. Creating Educationally-Rich Task-Oriented Movement (TOM) Activities



# Letter of the Week: Theme-Based

**L: Loving Me 9/13**  
**F: Feelings 9/20**  
**E: Emotions 9/27**  
**H: Halloween 10/4**  
**T: Toy Categories 10/11**  
**U: Under the Sea 10/18**  
**I: Ice Cold 10/25**  
**C: Vegetables 11/1**  
**O: Old v. New 11/8**  
**Q: Asking Questions 11/15**  
**Thanksgiving Theme 11/22**  
**G: Gift Giving 11/29**  
**Receiving**  
**S: Snow 12/6**  
**J: Jewels 12/13**

**12/20 Holiday Theme**  
**D: Let's Dig 1/3**  
**P: Polar Animals & Peace 1/10**  
**B: Ball Play 1/17 & 1/24**  
**R: Recycle 1/31**  
**K: Kites 2/7**  
**A: Animals 2/14**  
**MIDWINTER BREAK 2/21**  
**M: Music 2/28**  
**N: Nature 3/7**  
**V: Very Hungry Caterpillar 3/14**  
**W: Weather 3/20**  
**3/28-4/1 SPRING BREAK**  
**SPRING CELEBRATION 4/4**  
**X: Marks the Data 4/11**  
**Y: Yearly Seasons 4/18**  
**Z: Zoo Animals 4/25**

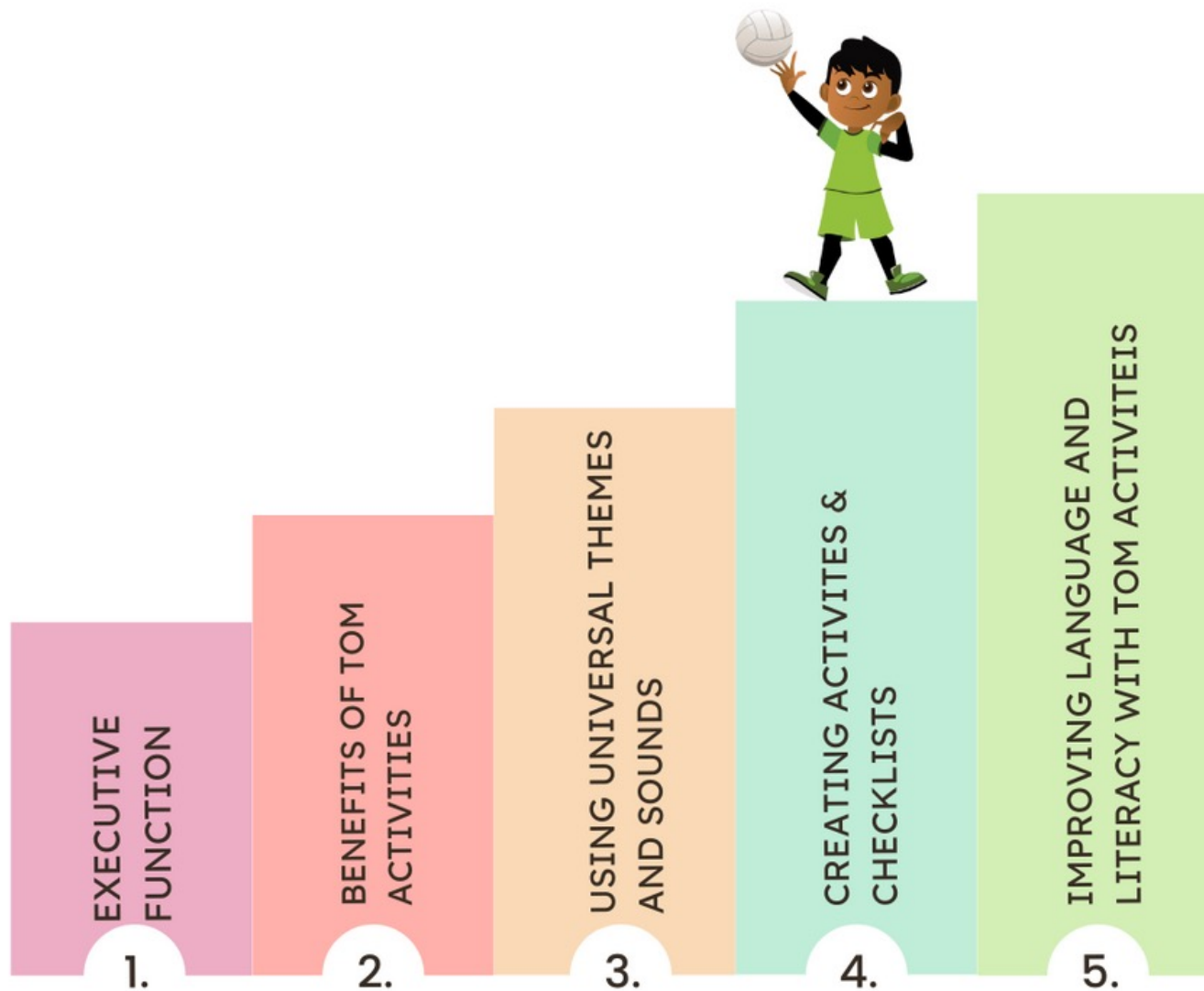


# How to Create TO/M Activities

Executive Function Promoting Behavior	Example
Goal	
Narrative (Problem, Plan, Action, Check)	
Pretend Play	
Movement Skills	



# Part III. Creating Educationally-Rich Task-Oriented Movement (TOM) Activities





# Executive Function Checklist

**Gemologist's Mission:** Find the king's jewels hidden in the rocks and place them on his crown.

**PROBLEM:** Jewels are missing in the rocks.

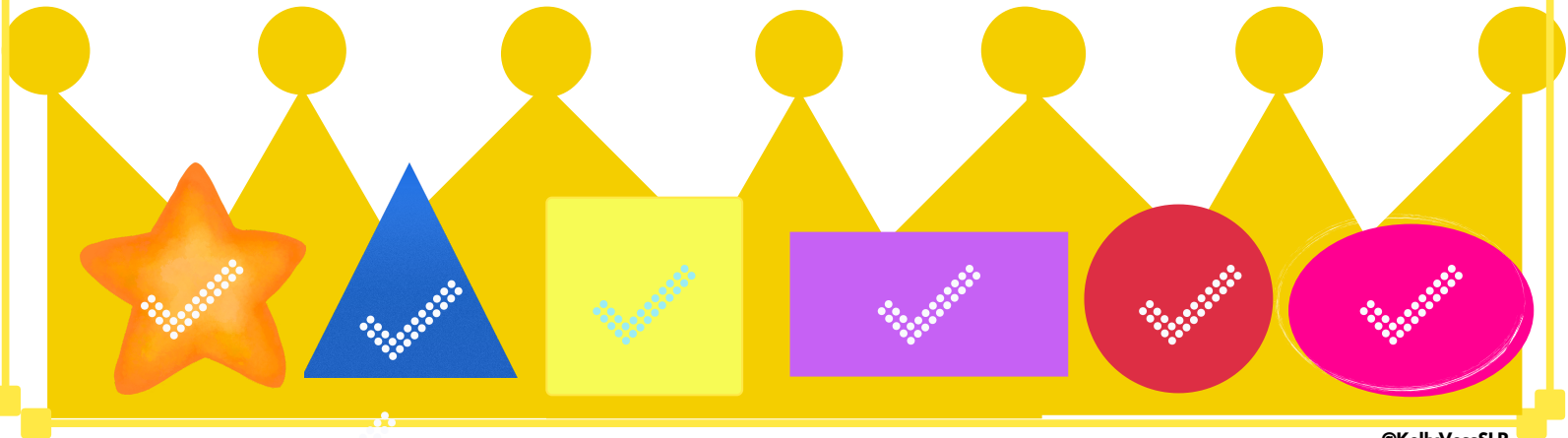
**PLAN:** Put jewels on the crown.



**ACTION:** Find the jewels and place them on the crown.



**CHECK:** Check that every jewel is on the crown.





# Narrative Sequencing Checklist

## Let's Make a Veggie Pizza!

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First,

1

First, spread on the sauce.

Next,

2

Next, sprinkle on the cheese.

Then

3

Then, slice on the toppings.

Lastly

4

Lastly, slide it into the oven.

## Hydrologist's Mission:

Build an igloo to study the snow.

First

1



First, climb over the mountain.

Second

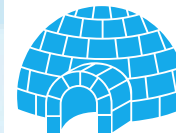
2



Second, select a snow block.

Third

3



Third, stack the blocks.

Fourth

4



Fourth, go back to get warm.


Fifth

5



Fifth, check the checklist.

# Academic Concepts Checklist

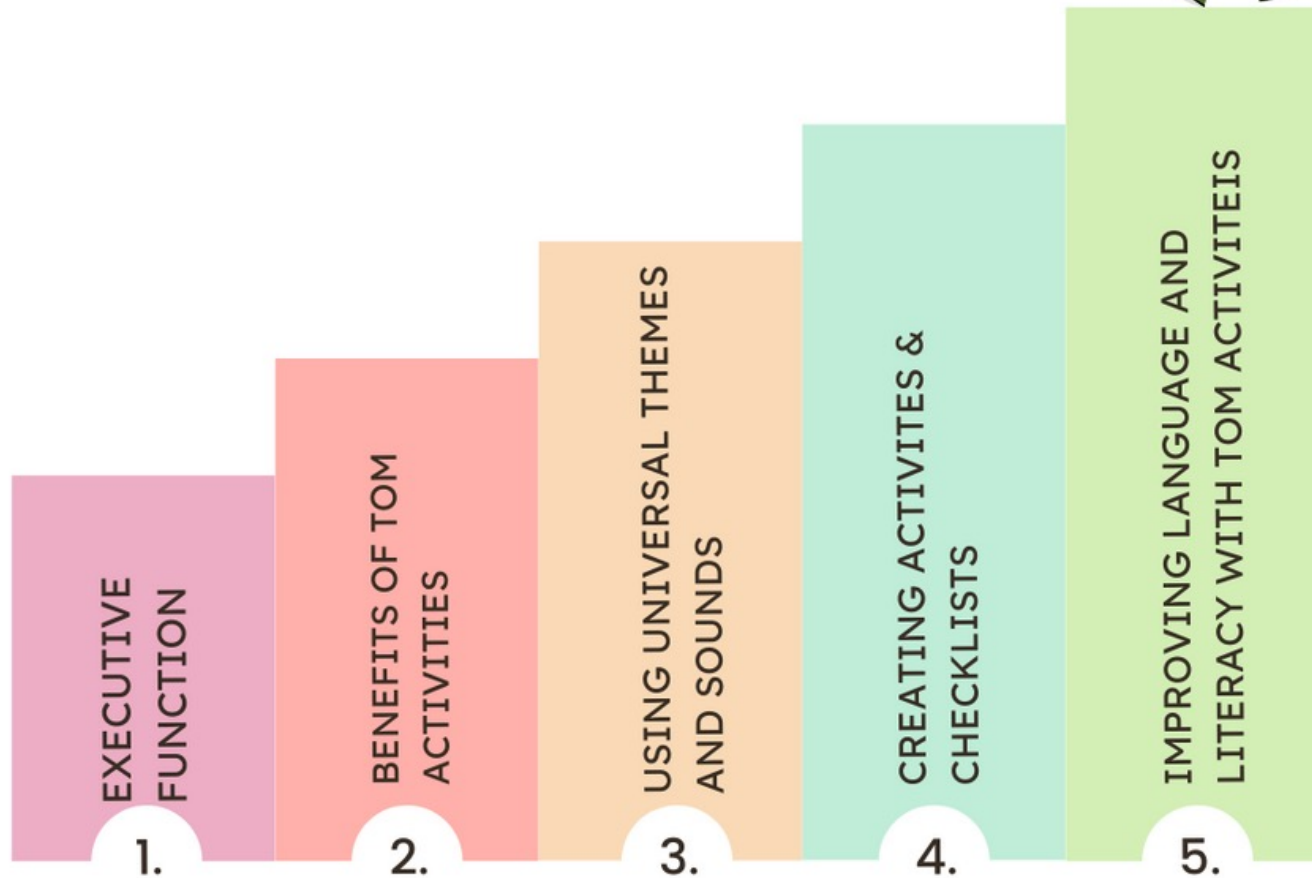
Sea Animals	Fish	Mammals
		
		
		
		
		
		
		
		
		

**KING COBRA EGGS ARE CRACKING!**  
 Herpetologist's Mission: Find the letters hidden in the King Cobra snakes eggs.



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# Part III. Creating Educationally-Rich Task-Oriented Movement (TOM) Activities



# TQM to Concurrently Improve Speech, Language, & Literacy

How can we simultaneously improve speech, language comprehension, expression, and literacy skills?

- Storytelling and Retelling Stories
- Acting out Sequences
- Combining Verbal and Visual supports
- Directly Teaching Story Grammar



# Identifying Steps in TOM Activities



Digital clip from 'Speech Sound Disorders: Comprehensive Evaluation and Treatment'

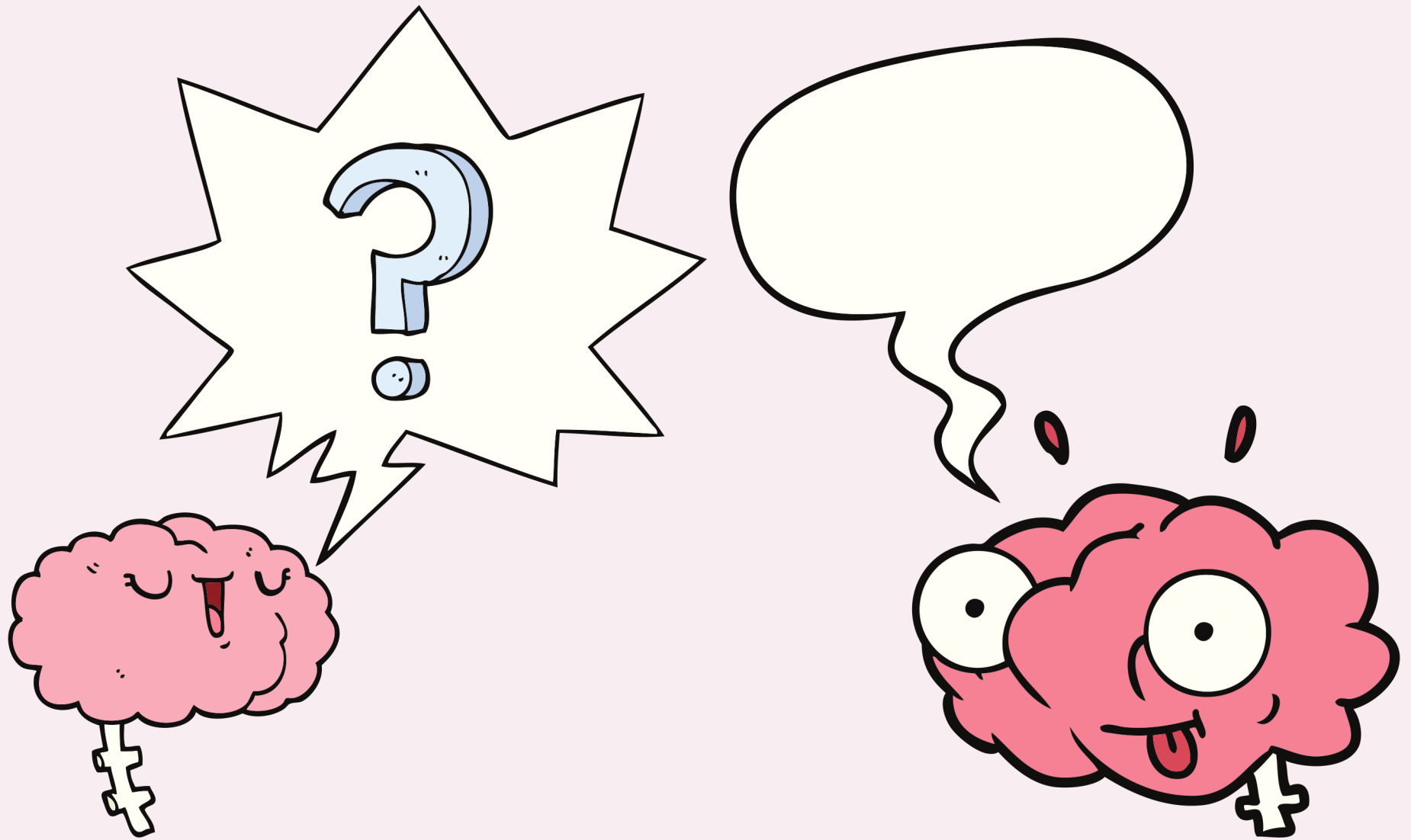


# TOM Activities: Narratives Language

Executive Function Promoting Behavior	Example
First...	
Next...	
Then...	
Lastly...	



# Questions & Comments



# Contact Kelly

If you have any questions, concerns, or would like to talk best practices, connect with Kelly at:

[KellyVessSLP.com/contact](https://KellyVessSLP.com/contact)

Here you'll also find links to join:

- SLP Creators Movement Facebook Group
- Weekly Free Google Slides Email List

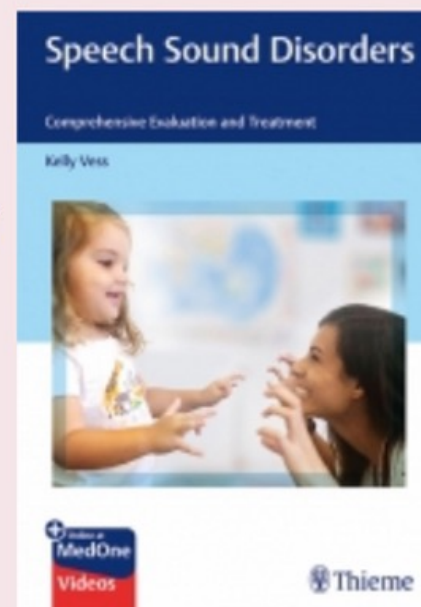


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# More Info...

## Multimodal Cueing

For information on how to multi-modally cue and develop educationally-rich activities: "Speech Sound Disorders: Comprehensive Evaluation and Treatment" by Kelly Vess  
At Amazon.com, Barnes & Noble.com, Thieme.com



Google Slides:  
[KellyVessSLP.com](http://KellyVessSLP.com)



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Checklists:  
[facebook.com/groups/slpcreators](https://facebook.com/groups/slpcreators)

Zoologist's Mission: Sort the loud animals out from the quiet ones.

Animals	Loud	Quiet
Ape		
Deer		
Elephant		
Lizard		
Giraffe		
Lion		
Snake		
Tiger		



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