STRENGTHENING EXECUTIVE FUNCTION IN THE EARLY YEARS:

DESIGNING ENVIRONMENTAL SCAFFOLDS AND CHILD-SPECIFIC INTERVENTIONS

WEBINAR 3: CULTIVATING COGNITIVE FLEXIBILITY

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AbleNet University Webinar	**August 21, 2018**

Executive Function Series

Webinar Objectives

- Increase awareness and understanding of executive functioning (EFs).
- Learn how to cultivate **cognitive flexibility** in young children who have or at risk for developmental delays and practice EFs during daily routines and structured activities.
  - Gain skills in creating growth-promoting environments and personalized instructional interventions to nurture EFs and **cognitive flexibility** in all children:
  - Learn how to engineer easy-to-use learner-specific scaffolds and adaptations
  - Increase access, engagement and participation of young children with special needs to enable their attainment of social-emotional, language and cognitive competence, and school readiness skills.

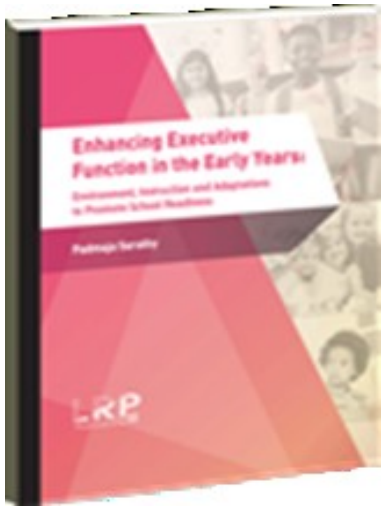
THE THREE-PART WEBINAR SERIES
Strengthening the Executive Function Components

- **Webinar1:** Building Working Memory in Young Learners
- **Webinar 2:** Fostering Inhibitory Control in Young Learners
- Webinar 3 will Discuss Cultivating Cognitive Flexibility in Young Learners

- **In this webinar session, you will learn about:**
  - **A very brief introduction to EFs and why focus on EFs in the early years**
  - **Illustration of environmental, instructional and personalized supports to nurture cognitive flexibility augmented with student-specific scenarios**
  - **Tools and resources that you can use to cultivate cognitive flexibility**
  - **Integrating child-focused best-practices: UDL principles and DEC recommended practices.**

A Major Webinar Resource

Enhancing Executive Function in the Early Years: Environment, Instruction and Adaptations for School Readiness

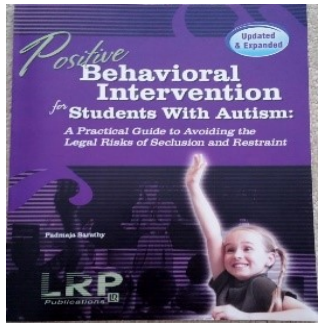


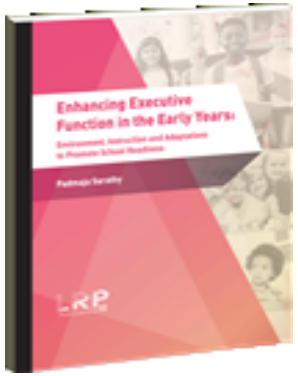
Sarathy, P. (2017). Horsham, PA: LRP Publications

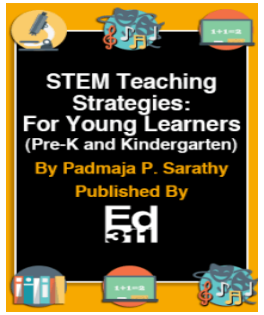
Get a strong foundation of knowledge about executive functioning and corresponding deficits, plus ready-to-use strategies and tools to deliver fun, meaningful and engaging instruction that advances young children's skills — all easily integrated into typical routines and activities of preschool and kindergarten settings:

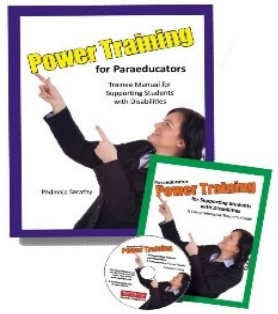
- ✓ Strategies to encourage pretend play with easy-to-use scaffolds and adaptations to nurture cognitive flexibility, creativity and self-control
- ✓ Descriptions on how to use games, songs and movement activities to continually increase the challenge to strengthen executive functioning skills
- ✓ Techniques to teach children how to use calming methods to develop self-control and reduce behavioral challenges
- ✓ Child-specific scenarios depicting a diversity of executive functioning difficulties with personalized interventions ✓ And more!

Sarathy's Publications: Books and Quick Reference Guides



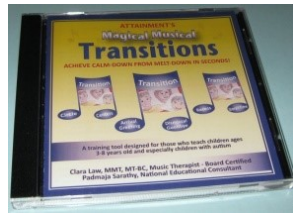


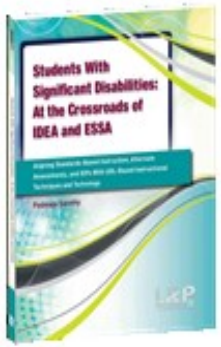


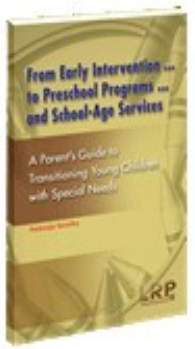


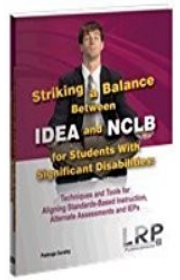
Focus Areas

- **Autism: Behavior Interventions, Support Strategies, Music CD - Transitions**
- **Early Childhood: Transition, Parent Guide and STEM Teaching Strategies**
- **Executive Function**
- **Paraeducator Training Guide and DVD**
- **Severe and Multiple Disabilities**
- **Significant Disabilities and ESSA**









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Executive Functioning and its Components

- Executive function (EF) skills are foundational building blocks for the early development of both cognitive and social capacities.
  - Children need EFs — able to focus, hold, and work with information in mind, filter distractions, switch gears and exercise self-control — for school readiness and academic success. (Center on the Developing Child, Harvard University, 2011)
- EF is broadly categorized into three 3 major cognitive processes:
  - **Working Memory** (ability to hold information and use it later)
  - **Self Control/Inhibitory Control** (the ability to master thoughts and impulses and to pause and think before acting)
  - **Cognitive or Mental Flexibility** (the capacity to shift gears and adjust to changing demands) (Miyake et al., 2000)
- Each type of EF skill draws on the elements of the other.

How Do Children Manifest Executive Functioning?

Working memory - typical examples:

- Follow teacher instructions to complete the task.
- Recall relevant information to respond to questions.
- Stay focused and pay attention during group instruction.

Inhibitory control - typical examples:

- Wait and not blurt out the answer
- React without agitation: resolve conflicts harmoniously during play and accept losing in the game calmly; request permission before taking another child's item

Cognitive flexibility - typical examples:

- Apply different rules in different settings
- Able to shift gears and adapt to different environments, activities and personnel

(Center on the Developing Child, 2011)

Why Focus on EFs in the Early Years?

- EFs may be delayed or compromised in some children and need to be addressed early. (Anderson & Reidy, 2012; Schoemaker and colleagues, 2011)
- Students with Autism Spectrum Disorders (ASD) have executive function differences, impaired cognitive flexibility and self-regulation difficulties.
  - Difficulties with adjusting to changes in strategies, shifting focus between tasks, transitioning to different environments and personnel, changes in routine, etc. (Aspy, 2012)
- EFs are essential for academic success and also crucial for success beyond school, for better life outcomes. (Diamond, 2012; Moffitt, et al., 2011)
  - EFs are closely associated with emotional, behavioral and social functioning.
  - EFs are highly vulnerable to dysfunction (Anderson & Reidy, 2012).
  - EFs is amenable to remediation and children who need it benefit the most. (Anderson & Reidy, 2012; Diamond, 2012)

Cultivating Cognitive Flexibility:
What Environmental and Instructional Supports Do You Currently Provide?

- Minimize visual and auditory distractions (with minimally decorated room)
- Offer Visual supports (e.g., visual boundaries, rules posted with pictures, visual/object schedule) consistently
- Advance planning for transitions: preparation for routine (e.g., going to recess) and non-routine (e.g., assembly, fire drill, etc.) activities/events
- Encourage pretend-play opportunities with modeling
- Regular use of brainstorming techniques
- Communication and (AT) support tools are available and consistent used

Cognitive Flexibility Difficulties

Young Children may exhibit problems with...

Adjusting to changes in routine, activities, and environments (making transitions) can trigger tantrums.

Coping with unseen/unfamiliar events may present a challenge.

Shifting focus from one activity to another may be particularly difficult.

Appreciating different perspectives, and looking at an array of viable alternatives in solving problems may be problematic.

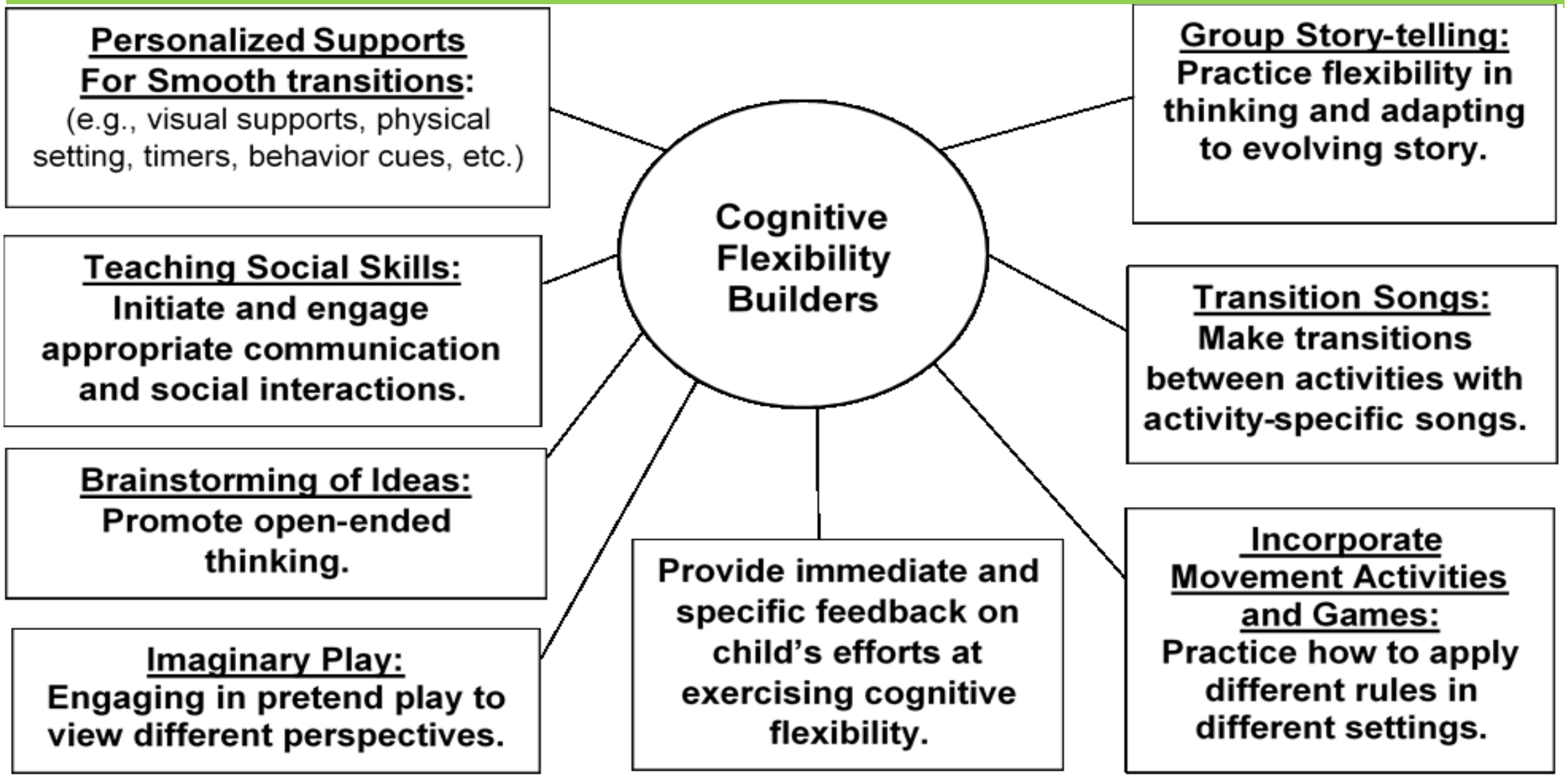
Adjusting from one set of rules to another can trigger tantrums.

Initiating and maintaining social interactions may be a challenge

Cultivating Cognitive Flexibility – Best Practices

- Consider each child's strengths and needs as it relates to cognitive flexibility in setting up your environment and at the planning stage of your instruction.
- Increase knowledge and understanding of the developmental stages of children and the associated characteristics and expectations.
- Ensure application of Universal Design for Learning to facilitate learners with diverse needs to cultivate EFs (cognitive flexibility):
  - **Multiple, flexible methods of presentation**
  - **Multiple, flexible methods of action and expression.**
  - **Multiple, flexible options for engagement.** (http://www.udlcenter.org/)
- Use the DEC Recommended Practices. as the guiding framework for EFs strategies in the design and planning of **1. Environment 2. Instructional Practices 3. Adult-Child Interaction 4. Family-based practices** (www.decsped.org/sped.org/recommendedpractices)

Cognitive Flexibility Builders



Adapted from Sarathy, 2017

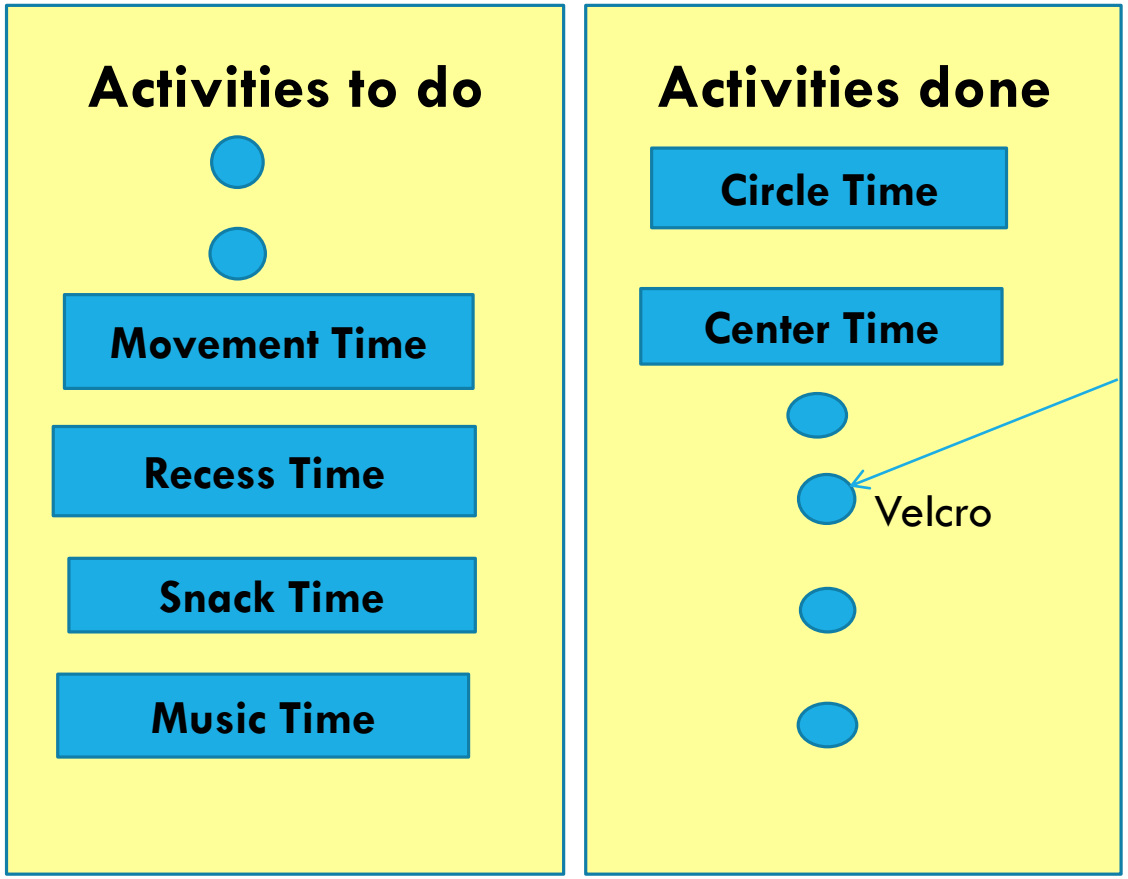
Cognitive Flexibility: Environmental Supports

- Ensure following predictable and consistent daily routines.
  - Adequate advance preparation for any changes to routines/personnel.
- Maximize learning times and minimize waiting time between activities.
  - Use a transition activity: songs, physical movement, etc.
- Provide visuals supports: schedule, cue cards, visual boundaries, videos, etc.
- Assign a peer buddy to assist with transitions within and outside classroom
  - Can model appropriate responses to transitions between activities.
- Set up a calming space to go to if student is feeling agitated.
- Make designated seating available with child's name and photo.
- Provide task-specific feedback.
- Gradually fade the intensity of supports to facilitate personal growth.

Visual Support Examples

Activity Schedule Inside a Folder

The student moves the cards paired with photos from the left to the right side of the folder when it is finished.



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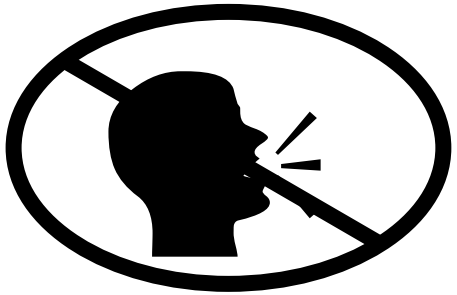
Visual Supports

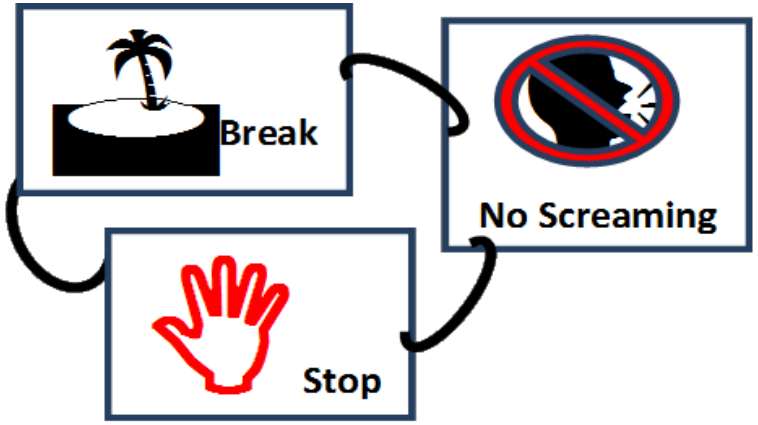


Too loud

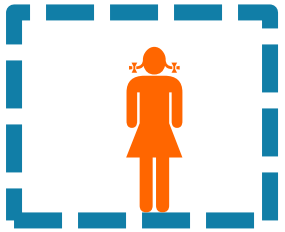
Just right

Too soft

Rule Cue Cards



Personal Space



First… (Math) Work

Then … Computer or Feed Fish

Practicing Cognitive Flexibility During Daily Routines:
Circle-Time and Center-Time

- **Provide activities that involve children in brainstorming of ideas** that are open-ended without judging them as right or wrong.
  - Involve them in thinking flexibly and explore different approaches to solving a problem.

- **Get children to learn to apply changing rules** using sorting and matching activities.
- **Involve children in pretend play** - requiring them to assume different roles and view situations from other's perspectives.
- **Promote adjusting to different perspectives and approaches through facilitating cooperative play (and build friendships):**

  - **Strategically set up Centers** --building a block structure or group art activity or Housekeeping center-- to facilitate cooperation, working together, and in adjusting to expressions of multiple points of view.

PADMAJA SARATHY

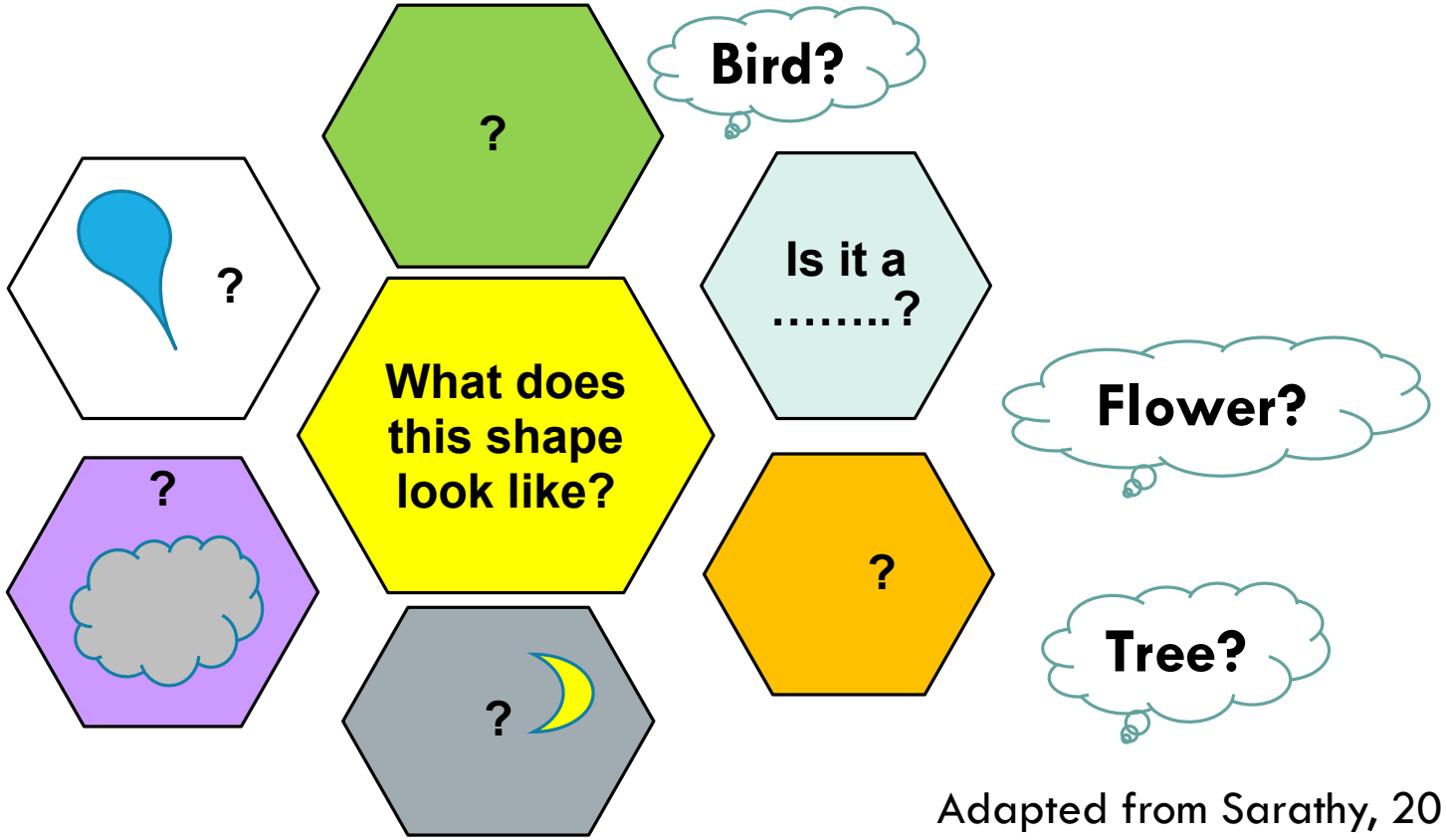
Brainstorming to Cultivate Cognitive Flexibility

Aided with a Graphic Organizer

Reading the picture book:
<u>It looked Like Spilt Milk</u>
By Charles G. Shaw

Circle Time Activity: Story Read-Aloud and Sharing

- **Promote flexible thinking and explore different perspectives.**
- **Get children to make guesses as you engage in a back and forth conversation while talking about the shapes (picture) on the page.**
- **Accept all responses.**

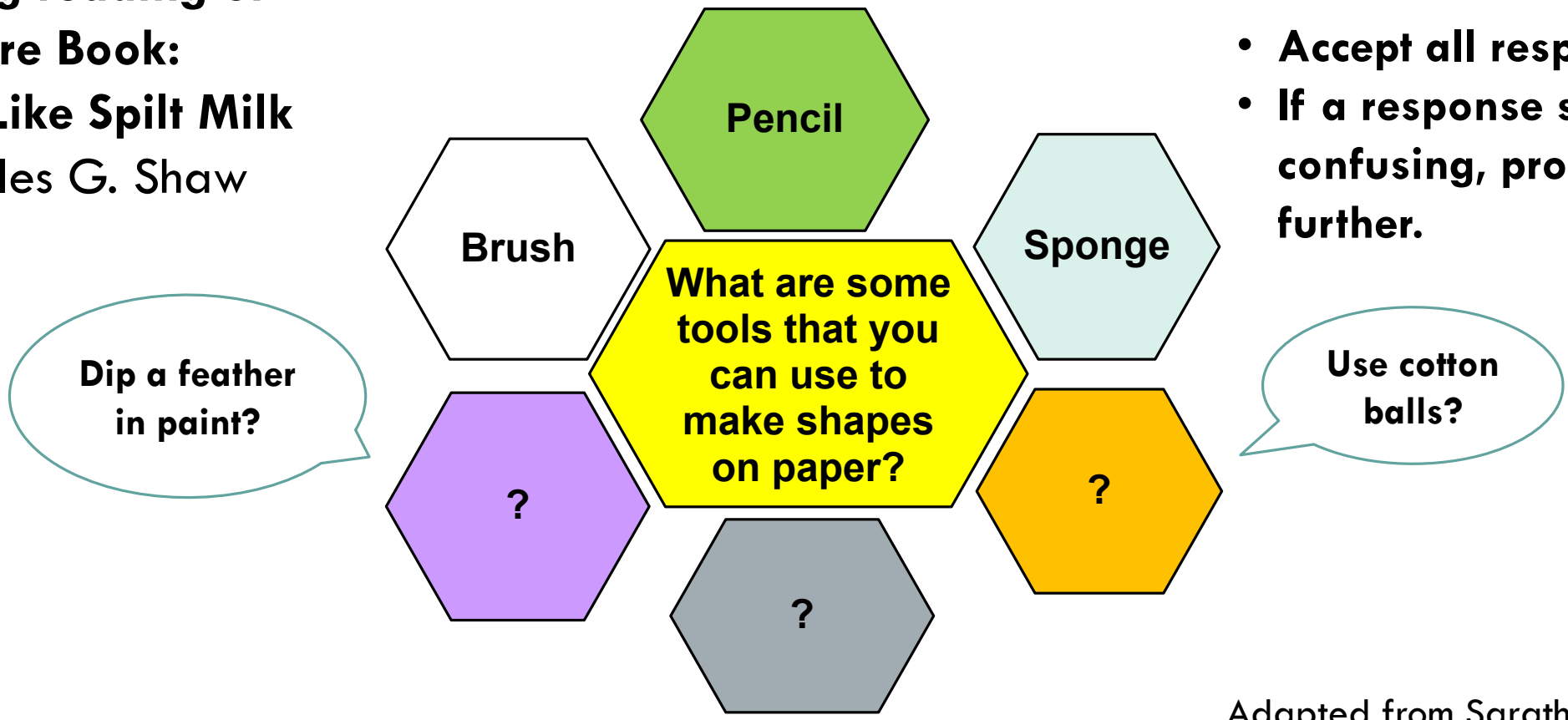


Adapted from Sarathy, 2017

Brainstorming to Cultivate Cognitive Flexibility

To think flexibly and explore viable alternatives

Following reading of Picture Book:
It looked Like Spilt Milk
By Charles G. Shaw



- **Accept all responses.**
- **If a response sounds confusing, probe further.**

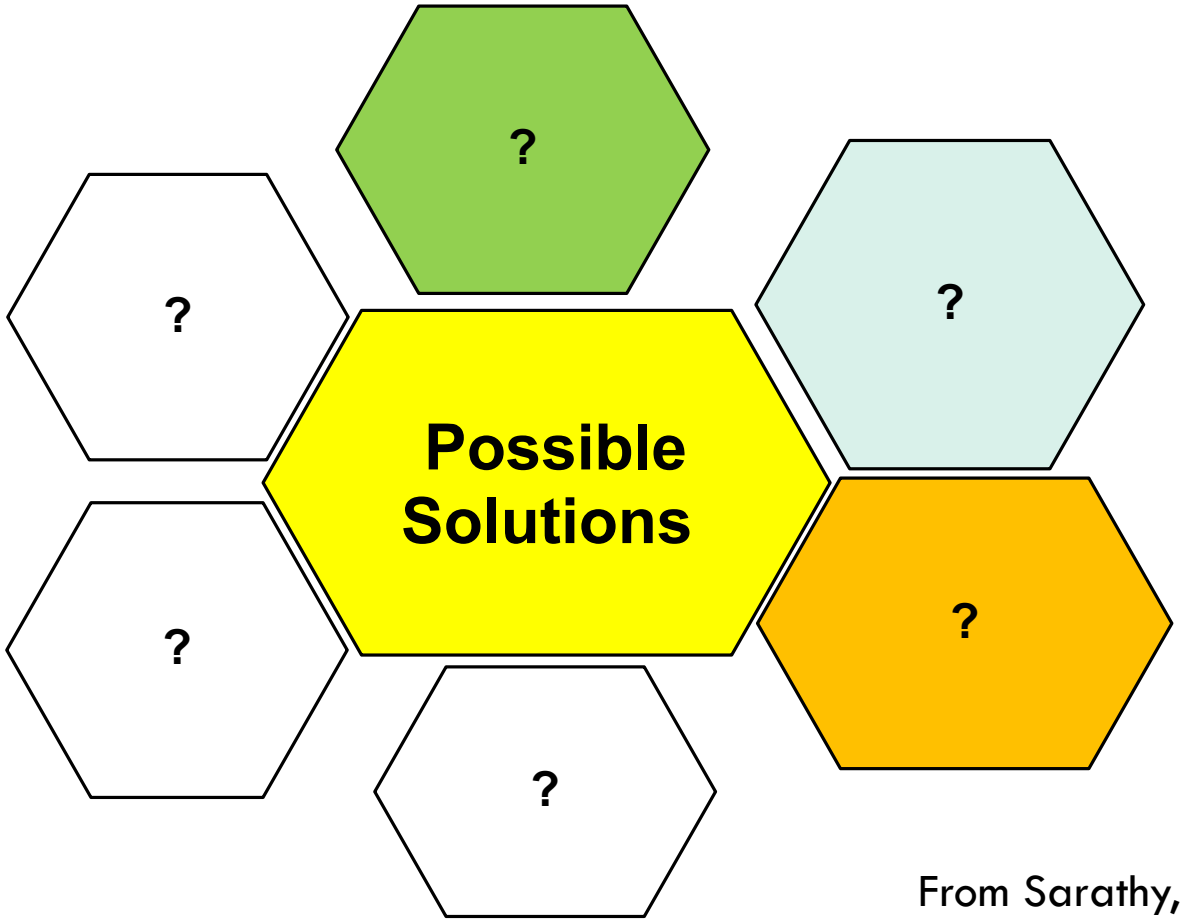
Adapted from Sarathy, 2017

Cultivate Cognitive Flexibility
A Graphic Organizer for Problem-Solving

Story: Caps for Sale
By Esphyr Slobodkina

The Problem:
The monkeys have all the caps. The peddler needs to get them back.

How can we help the peddler get them back?



From Sarathy, 2017

Group Story-Telling for Cognitive Flexibility

- **Pursue group story-telling activity** to practice flexible thinking and also working memory and inhibitory control.
  - The teacher starts a story (say, based on the book **'Are You My Mother'** by Eastman), and tells a little bit of it (e.g., "*Once upon a time, there was a mommy bird and a baby bird that lived in a nest. The mother bird went looking for food to feed her baby*"). (*Adapted from Sarathy, 2017. LRP Publications*)
  - Then, the teacher passes it on to one of the children to continue with the story.
  - The story continues with each child adding a bit to the story.
  - As each child adds a word, a phrase or a sentence, the story changes and each one tries to adapt to the evolving story (Center on the Developing Child, 2014).
  - Children learn to resist temptations to interrupt or correct others.
  - Provide mouth and ear pictures as additional supports to prevent interruptions (Galinsky, 2010).

Student Scenario - 1

Nina, a pre-kindergartner, experiences difficulties in seeing things from the perspective of the other children and seek alternative solutions when she encounters a conflict. Insistent on wanting to play with her favorite toy (Lego blocks) during Centers, she will not allow other children to play with it. Even if they try to touch it, she lets out a loud scream, which scares some of them causing a commotion and disruption of activities.

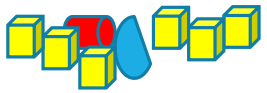
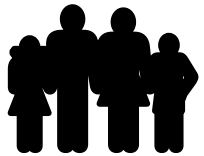
- Teach Nina to think about, gain awareness and understanding of others' thoughts and needs. Use **Social Narratives** (Wragge, 2011) to help her.
- Explore other play options – what alternatives with properties similar to the car set are available.
- Help Nina to practice the **Turtle Technique** with step-by-step instructions. Teach her the steps to calm down. Teach the strategy when she is composed and when feeling agitated.
- Guide her to take a timed break (if whining persists) at the calming space.
- Encourage her with immediate and specific feedback. Avoid reactive responses.

(Adapted from Sarathy, 2014)

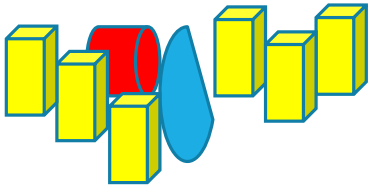
Developing a Social Narrative for your target child- A few sample pages…

HAPPY PLAY

A STORY TO TEACH SOCIAL SKILLS

I like to play with Lego blocks. Other children like to play with it too. I can choose another toy to play with and let my friend play with the blocks. Then, my friend is happy.



Everyone is happy.

Student Scenario

Ray, a 6-year-old kindergartner, has difficulty shifting focus from one activity to another and make a smooth transition. He usually throws a tantrum whining, crying and occasionally scratching adults who are nearby to escape moving to the new activity.

- Involve Roy in the practice of cultivating cognitive flexibility as part of the daily routine.
- Prior to transition, give him an advance warning signal and cue him again as you transition.
- Give him a preferred item (a toy, a puppet, etc.) to hold as he makes transition.
- Consider moving Roy to the next activity before other children.
- Do not try to bring him while he is exhibiting tantrum behaviors: crying, whining, and resisting to move from the present activity (e.g., computer).
- Include hands-on fun activities in the next activity to engage his attention.
- Praise others and if he stops the tantrum and joins the activity, provide immediate feedback with the task-specific positive comment.

(Adapted from Sarathy, 2014)

Cognitive Flexibility

Games, Music, Movement Embedded into Daily Routines

- **Play group games** to exercise cognitive flexibility: the Opposites Game (Go-No-Go games) and Simon says.
- **Use activity-specific songs** ♫ ♫ to provide guidance and directions to make transitions between activities.
  - To help children to move to the next activity calmly and avoid transition-related tantrums. (Law and Sarathy, 2009)
- **Involve children in ♫ ♫ music and movement ♫ ♫ activities to adjust to changing rules.**
  - Tap rhythm sticks together (Changing the number of taps or loud/soft, etc.)
  - Do the Freeze Dance paired with pictures (performing the action depicted)

From Sarathy, 2017

MAKE MUSICAL TRANSITIONS

Use music as a preventive measure to transform transition-related tantrums:

- Songs (mini-songs) provide guidance and directions musically to assist children during transitions. - (Magical Musical Transitions by Law and Sarathy, 2009)
- Designed with the application of principles of 'Music Therapy'.
- These songlets are short, piggybacked songs with lyrics (key words) specific to different transitions.
- Time for 'Circle-Time' song to invite children:

Now it's time for circle, circle, for circle. (Can precede with chimes, tambourines, or other instrument sounds)
Now it's time for circle, so come and sit down.
Sit in the circle, the circle, the circle.
Sit in the circle, come and sit down.
Eyes are looking, feet are quiet, hands on lap, ears are listening.
Now it's time for circle, so come and sit down. (variation - insert specific circle time activity)

Group Games and Activities

To Learn to Team with Peers
Develop Tolerance to Wait & Take Turns
Play Cooperatively with Peers

- **Parachute Game** (Work the parachute as a group tossing the ball up and syncing up their movements with the actions of others, so that all of them are catching and then launching together.
- **Follow the Leader** (Rotate the leaders to provide opportunities for all).
- **Group Art or Painting** (a table art activity with children working together on a theme – clouds? faces? – and adding their pictures)
- **Collaborative Writing & Drawing Activity** – as a group table activity project, students contribute in diverse ways - writing their own story or a sentence or adding just a word to the group work and add drawings to it.

From Sarathy, 2017

Books and Music Resources

Picture Book Suggestions to Build Cognitive Flexibility:

- Fish is Fish by Leo Lionni
- Corduroy by Don Freeman
- Caps for Sale by Esphyr Slobodkina (A You Tube video of the book is available at the following link: https://www.youtube.com/watch?v=lNptSCKqdfg)
- It Looked Like Spilt Milk by Charles G. Shaw (A You Tube video of the book is available at the following link: https://www.youtube.com/watch?v=sbg-tFF7yLw)
- Music to assist with transitions:

Magical Music Transitions CD by Law & Sarathy (Available from National Professional Resources, Inc., Website: http://www.nprinc.com/magical-musical-transitions/)

From Sarathy, 2017

Additional Transition Challenges You May Encounter…

Transition to non-routine events – e.g., fire drill or school gathering, etc.

- Prior preparation and repeated practice needed for fire/tornado drill, etc.
  - Show a video depicting step-by-step procedures to follow during a fire drill.
  - Teach and practice the sequence of actions: **quiet mouth**, **lining up to go outside**, **waiting outside**, **returning back to the classroom**, etc.
  - Invite a fireman to come and make a presentation to the class to learn about fire safety and about what firemen do, their jobs.
  - Provide a quick visual signal pointing to a photo during fire drill.
  - Pre-arrange for additional support.
  - Practice calming techniques.

(Adapted from Sarathy, 2014)

- Provide child-specific adaptations for transitioning to and responding to special school events.

Use Technology to Reduce Frustrations in Communicating Needs and Thoughts.

Support with Regular Technology and Assistive Technology

- Use Technology Applications (Apps)
- Use PowerPoint© Presentations

Assistive Technology Devices

Quick Talker

Talking Brix Communicator

Voice Output Devices

BIG Step-by-Step with Levels

iTalk2 Communicator

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Seven Tips to Promote Executive Functioning

Brain loves action. Heighten children's interest, engage and sustain their attention during instruction with interactive demonstrations, story-telling, role play and drama and movement.

Use an interactive learning process to sustain children's attention. Combine direct instruction with hands-on activities to practice what they have learned.

Incorporate novel materials (e.g., musical instruments and toys, puppets, objects hidden in a bag, science and math tools etc.) to heighten children's curiosity and sustain motivation.

Play games to exercise working memory, build attention, develop self-regulation and cognitive flexibility.

Weave multi-sensory features into your lessons. Moving, touching and experiencing — linking abstract concepts with concrete objects — will facilitate comprehension and assist with recall.

Strengthen children's emotional literacy. Role-play problem situations and model how to respond to stressful situations.

Teach and model self-calming strategies to develop self-regulation. Integrate yoga and mindfulness-based practices into the daily routine.

Web-Based Resources To Assist with Cultivating Cognitive Flexibility

- Autism Internet Modules provide a number of professional development training modules to assist educators and others serving individuals with autism. The website address is: http://www.autisminternetmodules.org/.
- Division for Early Childhood, The Division for Early Childhood of the Council for Exceptional Children. (2014). DEC recommended practices in early intervention/early childhood special education. Retrieved from: http://www.dec-sped.org/recommendedpractices.
- The Center on the Social and Emotional Foundations for Early Learning (CSEFEL) offers a number of helpful documents in the 'What Works Briefs' series.
  - The center offers a brief titled, *Helping Children Make Transitions between Activities* by Ostrosky, Jung, & Hemmeter. Website: http://csefel.vanderbilt.edu/briefs/wwb4.pdf.
- Universal Design for Learning: http://www.udlcenter.org

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T H A N K S.

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