

Bank Street College of Education

Educate

---

Graduate Student Independent Studies

---

Winter 1-5-2019

## Supporting Therapy in the Classroom : Strategies for Occupational, Speech/Language, and Physical Therapy

Laure Elise Recoder

*Bank Street College of Education, lrecoder@bankstreet.edu*

Follow this and additional works at: <https://educate.bankstreet.edu/independent-studies>



Part of the [Disability and Equity in Education Commons](#), and the [Health and Physical Education Commons](#)

---

### Recommended Citation

Recoder, L. E. (2019). Supporting Therapy in the Classroom : Strategies for Occupational, Speech/Language, and Physical Therapy. *New York : Bank Street College of Education*. Retrieved from <https://educate.bankstreet.edu/independent-studies/238>

This Thesis is brought to you for free and open access by Educate. It has been accepted for inclusion in Graduate Student Independent Studies by an authorized administrator of Educate. For more information, please contact [kfreda@bankstreet.edu](mailto:kfreda@bankstreet.edu).

Supporting Therapy in the Classroom  
*Strategies for Occupational, Speech/Language, and Physical Therapy*

Laure Elise Recoder

Infant and Family Developmental and Early Intervention Dual Certification Program

Mentor:  
Dr. Sean O'Shea

Submitted in partial fulfillment of the requirements of the degree of  
Master of Science in Education  
Bank Street College of Education  
2019

## Supporting Therapy in the Classroom

Laure Elise Recoder

### Abstract

With so many developmental differences early in life, it is important for early childhood educators to be just as supportive as therapists, and possibly more so, because they spend more time with children. This guide is intended for early childhood educators working with young children who receive services in occupational therapy, speech-language therapy, and/or physical therapy. When children receive therapy services, they are often removed from the classroom setting and are seen privately by a therapist, or with a small group, in a separate room. However, intervention strategies are also effective when implemented in the child's natural environment, such as the school setting or the home. This handbook will review specific strategies and activities that therapists use with children during their sessions, in order for teachers of these children to apply and reinforce the work of the therapist in the classroom. The targeted population for this guide is young children in a preschool setting. Mainly, these strategies aim to benefit and support children who are working with occupational therapists, speech-language therapists, and/or physical therapists. However, these strategies could also be beneficial for children who do not receive therapy, or whose developmental variations have not yet been identified.

## Table of Contents

I.	<b>Introduction and Rationale</b> .....	4
II.	<b>Occupational Therapy</b> .....	7
	<b>Introduction</b> .....	7
	<b>Strategies</b> .....	9
	1. Collaboration with Occupational Therapists .....	9
	2. Meeting Children Where They Are .....	11
	3. Environment .....	13
	4. Consistency and Organization .....	16
	5. Active Sensory Motor Experiences .....	18
	6. Adapting One’s Own Behavior .....	21
	<b>Curriculum Approaches</b> .....	22
III.	<b>Speech/Language Therapy</b> .....	25
	<b>Introduction</b> .....	25
	<b>Strategies</b> .....	27
	1. Total Communication Approach .....	27
	2. Environment-Focused Approaches .....	28
	3. Using Books .....	30
	4. Involving Peers .....	32
	5. Visual Aids and Sign Language .....	33
	6. Playing Games .....	35
	7. Music and Songs .....	36
	8. Talking and Narrating .....	37
	9. Listening and Responding .....	39
	10. Meeting Children where They Are .....	40
	<b>Curriculum Approaches</b> .....	41
IV.	<b>Physical Therapy</b> .....	43
	<b>Introduction</b> .....	43
	<b>Strategies</b> .....	44
	1. Collaboration with Physical Therapists .....	44
	2. Classroom Arrangement and Organization .....	47
	3. Furniture, Materials, and Assistive Equipment .....	50
	4. Movement and Exercise in the Routine .....	51
	5. Developmentally Appropriate Tasks .....	54
	6. Knowing the Child’s Disposition and Temperament .....	57
	7. Knowing the Child’s Interests and Motivators .....	59
	8. Peer Modeling and Social Experiences .....	61
	9. Addressing Barriers to Participation .....	62
	<b>Curriculum Approaches</b> .....	64
V.	<b>References</b> .....	66

## **I. Introduction and Rationale**

In inclusive settings, therapy services can be more or less integrated on a continuum of service delivery models (McWilliam, 1995). An individual pull-out model is often used when therapists work with children in schools, and this involves removing the child from the classroom setting. The therapist focuses individually on the child, in a space separate from peers and classroom routines. This is the least integrated option, and the teacher's role is to exchange information with the therapist before and after the therapy session. Therapists also conduct pull-out sessions with small groups of children, as well as individual sessions with children in the classroom. One of the most integrated models involves individual therapy that happens in the classroom during the regular routine. In this model, therapists focus directly on the child, but not exclusively. When therapy happens in the classroom, teachers can observe the therapists' interactions with the child, and are more likely to consult with the therapist (McWilliam, 1995).

Under the Individuals with Disabilities Education Act (IDEA), children's services and educational needs must be met in the Least Restrictive Environment (LRE) for children aged three through school ages, and in natural environments for children from birth through age two. The philosophy of IDEA encourages an integrated and functional model of service provision (Sekerak et. al, 2003). McWilliam (1995) defined integration as "activity occurring within the context of daily routines in the classroom along with classmates" (p. 30). Integrating services has many benefits, including fostering social relationships between children with special needs and their peers, and increasing opportunities for children to practice skills in a functional way, and in places in which these skills are likely to be useful. This concept of integration also requires therapists and

teachers to collaborate extensively (McWilliam & Bailey, 1994). Indeed, teachers play an important role in facilitating integrated services in their classrooms, and in supporting the progress of the children in their classrooms who receive therapies.

It is important to note that the LRE does not refer to a specific model of service delivery that is right for all children. Some children might benefit more from therapy outside of the classroom, in a distraction-free environment. On the other hand, pull-out programs can interfere with classroom participation and disrupt the child's peer interactions. Teachers should engage in collaborative discussion with therapists to determine what model works best for a particular child. This will involve discussing the student's attention, possible distractions to the student and to others in the classroom, and physical limitations to the classroom, among other considerations that might determine which therapy model is the best fit for the child. Teachers should also give feedback to therapists, to ensure that the therapist's suggestions are feasible and practical in the classroom. Consultation between therapists and teachers is four times more likely to happen when therapy is provided in the classroom, which is one of the benefits of integrating services (McWilliam & Bailey, 1994).

While therapy service delivery models will vary, based on the needs and goals of every child, teachers play a consistent role in the child's learning and development in the classroom environment. When teachers know what children are working on with therapists, they can assist in supporting those goals outside of therapy time (McWilliam & Bailey, 1994). Therefore, regardless of how services are provided to children in their care, teachers can support children's goals and development by collaborating effectively with therapists, and by learning and applying the tools and strategies that therapists use

during their sessions with children. In doing so, teachers will be able to consistently reinforce the progress that children make during their therapy sessions. Children with language delays or challenges, as an example, will be receiving language support consistently in the classroom. As Polmanteer and Turbiville (2000) suggest, “rather than a once- or twice- a-week therapy session, the child can have every day focus on communication development. This benefits the child, the family, and the speech-language pathologist” (p. 12).

This guide is intended for early childhood educators working with young children who receive services in occupational therapy, speech-language therapy, and/or physical therapy. This handbook will review specific strategies and activities that therapists use with children during their sessions in order for teachers of these children to apply and reinforce the work of the therapist in the classroom. Techniques for building partnerships and collaborating effectively with therapists are also reviewed. This is necessary to ensure consistency and facilitate implementing strategies to support the child in various environments (Barnett & O’Shaughnessy, 2015).

The targeted population for this guide are young children in a preschool setting. However, these strategies could also be beneficial for children who do not receive therapy, or whose developmental variations have not yet been identified. The guiding question for this handbook is then: How can teachers extend and incorporate the work of therapists into the classroom environment and in their interactions with young children?

## **II. Occupational Therapy**

### **Introduction to Occupational Therapy**

#### *What is Occupational Therapy?*

Occupational Therapy (OT) aims to help people with sensory, physical, or cognitive disability to be as independent as possible in all areas of life. Pediatric Occupational therapists (OTs) work with children with various needs to help them improve skills in cognitive, physical, sensory, and motor domains. They also focus on enhancing the child's self-esteem, and sense of accomplishment. The child's main occupations are play and learning, and OTs can evaluate the child's skills in these areas and compare them with what is developmentally appropriate for that age group. In addition, occupational therapy addresses social, psychological, and environmental factors that affect functioning in different ways, making OT a vital part of healthcare for some children (Harron, 2014).

#### *Who Benefits from Occupational Therapy?*

Many children can benefit from occupational therapy. "Anyone whose daily life is limited can benefit," says Judy Wilner, a pediatric occupational therapist who works with children aged 0-5 (Judy Wilner, personal communication, November 3, 2017). Some examples include children with birth injuries, sensory processing disorders, traumatic brain or spinal cord injuries, learning disabilities, autism, pervasive developmental disorders, juvenile rheumatoid arthritis, mental health or behavioral problems, developmental delays, multiple sclerosis, cerebral palsy, and other chronic illnesses (Harron, 2014).



*How might Occupational Therapists help these children?*

Occupational therapists support children in many areas. OTs might focus on fine motor skills, to help children grasp and release toys, and develop the skills needed for handwriting. They also assist children, particularly those with severe developmental delays, to learn basic life tasks, such as self-feeding, getting dressed, and brushing one's teeth. They might work with children on hand-eye coordination, and provide coordination skills for children with physical disabilities. In addition, OTs aim to increase positive behaviors in all environments for children with behavioral disorders. Much of the work of occupational therapists in preschools involves supporting the needs of children with sensory processing issues, as well as those with attention issues, to improve focus and social skills (Harron, 2014).

*What is sensory processing?*

Sensory processing is how the brain registers, interprets, and uses information gathered through the senses: sight, hearing, taste, touch, smell, body awareness and balance. Sensory input is thought to have a mediating effect on arousal and alertness states, and we need sensory input for the brain to develop and function (Saunders, 2005.) Everyone has sensory preferences, and it is important to understand our own in order to understand and support the sensory needs of others.

*What are sensory processing difficulties? How do they interfere with learning?*

Sensory processing difficulties (SPDs) can affect anybody but tend to be more common or severe in people with autism, Tourette syndrome, Fragile X, and learning

disabilities. SPDs can impact productivity, participation and enjoyment in life. In children, sensory difficulties might lead to poor self-esteem, avoidance, unexplained outbursts, decreased social skills and play, anxiety, poor attention, and poor motor skill development. In addition, children with sensory processing issues often have difficulty regulating response to sensory input and might not be able to maintain a calm alert state (Saunders, 2005.) This, as a result, affects the child's ability to learn and play.

Occupational therapists often work with children with sensory processing difficulties in order to improve their ability to process and integrate sensory information, which in turn creates a foundation for improved independence and participation in the activities of daily life, play and school.

### **Strategies**

The strategies indicated here are based on observations and communications with a pediatric occupational therapist, Judy Wilner, as well as empirical research and publications about sensory integration, occupational therapy, and effective classroom supports for preschool children with sensory processing difficulties and other developmental variations.

#### **1. Collaboration with Occupational Therapists**

The strategies that follow in this handbook should be applied with the child's individual differences in mind. Not all will work for all children, and it is imperative that interventions are focused on the child's unique developmental profile. This includes identifying areas of challenge and intentionally addressing those. Teachers must also learn the child's strengths and motivations in order to best engage the child and elicit

progress. Often, the child's therapist will be the most knowledgeable source of strategies that work for that particular child.

Barnett and O'Shaughnessy (2015) claim that it is essential for OTs and teachers to collaborate in order to ensure maximum benefit for the shared student. Indeed, supportive, mutually respectful relationships between OTs and teachers can improve results for students. If the child has sensory processing difficulties, the OT should be able to identify that child's specific needs and can assist the teacher in understanding them. OTs can also identify environmental variables that support or interfere with the child's ability to benefit from classroom activities and can recommend strategies to enhance engagement (Barnett & O'Shaughnessy, 2015).

Therapists can also benefit from gaining information on how the child behaves in the classroom, in order to further the child's progress during their sessions. As Judy Wilner explains: "Teachers are able to spend much more time with their students. Generally, therapists only see students 2-3 half hours a week. Therefore, an exchange of ideas is crucial. Therapists need to hear about the child's issues in the classroom, which is more relevant than how the child performs in a structured 1:1 setting" (personal communication, November 3, 2017).

According to Barnett and O'Shaughnessy (2015), teachers and therapists can communicate effectively through active listening, and by posing thoughtful questions. In addition, it can help to paraphrase and summarize the conversation, in order to check for understanding, and to seek clarification when necessary. Another essential factor to successful collaboration is mutual respect. Mutual respect is fostered when both teachers and therapists are open to new ideas and value the expertise of the other professional.

In many settings, conversations between therapists and teachers happen in passing, perhaps in a hallway, or in the classroom while children are present. This does not facilitate successful collaboration, as both therapists and teachers cannot be fully present in these moments. Barnett and O'Shaughnessy (2015) suggest putting in place regularly scheduled meetings to allow for co-planning, and opportunities to discuss the students, their goals, and how they can be supported most effectively. In addition, OTs should be allotted periods of observation in the classroom. This will allow them to evaluate which strategies may benefit the child, as well as how these might benefit the other children in the classroom. In addition, this will enable the OT to develop an understanding of classroom set-up and activities. As a result, the OT can offer general suggestions to the teacher, as well as specific strategies for students, based on what was observed (Barnett & O'Shaughnessy, 2015).

## **2. Meeting Children Where They Are**

In the Developmental Interaction Approach, learning is based in the teacher's awareness of the child's development, with the assumption that development unfolds at different times and ages for different children. This approach prioritizes "meeting" children where they are, and on their own terms (Nager & Shapiro, 2000). For this reason, therapy, and learning, are often successful when it is child-directed. In Occupational Therapy, using a Sensory Integration Approach (OT/SI) therapists honor children's preferences when creating activities for that child and aim to meet children where they are by providing a challenge that the child can achieve (Schaaf & Miller, 2005). OT/SI incorporates four principles that are inherent in the therapists' work with children:

- **The Just Right Challenge:** therapist offers playful activities with achievable challenges (there is a challenge in activities but the child is always successful)
- **The Adaptive Response:** In response to the above, the child adapts their behavior to include new and useful strategies, furthering development.
- **Active Participation:** Therapist creates challenging, playful, sensory rich environments that entice the child to play (therapist uses observation skills to understand child's behaviors and interests and create a playful environment). The methods of play incorporate new and advanced abilities that increase the child's repertoire of skills and processing.
- **Child-Direction:** The therapist observes and interprets the child's behavior constantly to follow child's lead and suggestions, and uses the child's cues to provide enticing, sensory-rich activities (Schaaf & Miller, 2005).

These principles can be informative for teachers working with children with sensory integration difficulties. For example, keen observation of the child's behaviors and preferences can help the teacher understand the child's behavior from a sensory perspective. This, in turn, can help teachers create an environment that is therapeutic, motivating, and also challenging, to help the child become more functional in daily life activities.

Kranowitz (1998) suggests that children learn best when they investigate subjects that are interesting and relevant. Therefore, it can be productive to find out a child's interests, and lead him to explore these subjects through his preferred sensory path. For example, a child interested in buildings, who is also a tactile learner, might benefit from building models with Lego. Pediatric OT Judy Wilner combines the child's preferences with activities that she knows will be supportive for that particular child: "I try to pair preferred activities with non preferred activities. I like to give the child some choices but also encourage them to try my choice" (personal communication, November 3, 2017).

A practical illustration of how teachers can develop the principles of OT/SI into curriculum is the "Look-Move-Build-Sketch" approach. This approach to curriculum is guided by the idea that "successful sensory integration therapy is correlated with

children's motivation in selecting activities that will be beneficial to them" (Miller, 2007, p. 51). Each word of the name "Look-Move-Build-Sketch" (Miller, 2007, p. 51) stands for a variety of experiences and activities that create meaningful learning for children.

- "Look" refers to the child's act of taking in information and exploring through sensory experiences. Outdoor experiences are especially meaningful, and provide children with the opportunity to "see" in many ways.
- "Move" involves purposeful movement that provides a deeper and more holistic understanding of objects and concepts. For example, teachers can encourage children to move their bodies like the objects they are studying or observing, in order to internalize their learning about the objects. This provides outlets for kinesthetic children that need to be physically active, and promotes body awareness. Movement also allows for non-verbal communication of knowledge.
- "Build" incorporates tactile learning, by allowing children to physically manipulate materials, three dimensionally. This allows children to develop a deeper understanding of the objects, and promotes abstract thinking skills, because they are representing the objects internally.
- "Sketch" is a vehicle for communicating what children have already internalized and refers to the child's expression of their knowledge. This involves creating representational and interpretive expressions that communicate their knowledge, which can be done in many ways.

Miller (2007) emphasizes that these do not have to happen in any particular order: "it provides an organizing structure for activities, yet is flexible enough to allow individual children to experience just the right amount of challenge" (p. 51). In addition, this approach is practical in that it can be used at any time of day, both in the classroom and outside. The sensory focus of this model provides children with multiple languages through which to communicate their knowledge, recognizing the diverse ways in which young children receive, process, and respond to sensory stimuli. As a result, this allows for the success of all children.

### **3. Environment**

In order to enable and promote participation in the classroom environment, it is crucial for educators to design their classrooms around the needs of children with

disabilities, and specifically to the needs of the children in that particular classroom. Occupational therapists use the environment intentionally, which might mean modifying it to remove barriers to the child's success (Luborsky, 2017). According to Rodger and Ziviani (2006), "occupational therapists view the environment as a facilitator of occupational performance, as well as a feature that can present barriers or excessive demands, which hinder performance" (p. 41). Enabling the child's "optimal occupational performance" (p. 41) often involves physical modifications to the environment. When children in your classroom have sensory processing disorders, learning disorders, or attention difficulties, the following environment-based intervention strategies can help. In fact, all children can benefit from a safe, calm, and distraction-free environment (Kranowitz, 1998).

Reducing sensory overload is a first step towards helping children feel safe and calm in the classroom environment (Kranowitz, 1998). Teachers need to consider all of the senses that might distract children with sensory processing disorders. To begin with, tactile distractions can divert the child's attention, such as the proximity of classmates. Help the child find a spot to feel safe, such as the head of the table or the edge of a rug, to lessen contact with other children. Provide the space the child needs. In addition, it is important to limit visual distractions: remove clutter on bulletin boards and secure pictures to walls so they don't flutter. Put a solid colored sheet over open shelves with materials that might distract the child. Remove swaying mobiles and adjust blinds to prevent sunlight from flickering through. If the movement of other children is distracting, have the child sit near the teacher at the front of the room with her back to her classmates, and surround her with children who sit quietly and pay attention (Kranowitz, 1998).

Moreover, auditory distractions may make the room seem like an echo chamber for the child with auditory processing problems. Cover hard surfaces with carpet or cloth (to avoid them reflecting sound). In addition, be aware of background noise like a ticking clock or an air conditioner. Don't sit the child near a window or by humming fish tanks. Furthermore, playing classical music during quiet work time might soften auditory environment. Finally, even smells can be distracting for some children (Kranowitz, 1998). Teachers should limit olfactory distractions by keeping animals and other aromatic materials away from the child with sensory processing difficulties.

Providing comfortable and appropriate furniture is another environmental adjustment that can be made to support children receiving OT (Kranowitz, 1998). Some children frequently fall off chairs because of inefficient body awareness. If the furniture is an appropriate fit, these children may be able to align their bodies and maintain a stable posture. Find a chair that does not tip: the height of the chair should allow the child to place his feet flat on the floor. In addition, if a preschool child is fidgety at circle time, a ball to sit on may help focus her attention. The ball's diameter should equal the distance between her buttocks and the floor when her knees are bent at a right angle and her feet are flat on the floor (Kranowitz, 1998).

Furthermore, it can be organizing and regulating for children when there are "sensory spaces" in the classroom (Saunders, 2005). These sensory spaces can include a work space, in which toys and materials are easily accessible. A quiet space should include pillows, and quiet activities, such as books. In addition, a movement or "heavy work" space with therapy putty and small weights, for example, can be beneficial to some children. Teachers should also incorporate opportunities for "heavy work" into the daily



schedule.

Finally, Saunders (2005) recommends sticking to a monochromatic color scheme in the classroom, and allowing for a blank or neutral space. Hues of blue, violet and green are generally calming and should be used for areas that provide calming opportunities. Bright colors such as red and orange are alerting, and should be used sparingly to draw attention to important details or areas of information, such as around the daily schedule board.

#### **4. Consistency & Organization**

In addition to controlling the physical environment, educators should be aware of the way the classroom is managed throughout the day. As pediatric OT Judy Wilner explains, “everything can be distracting and disorganizing for some children, especially in classrooms in which transitions are abrupt, and the routine is unpredictable” (personal communication, November 3, 2017). For this reason, teachers can help children participate and feel confident by managing the classroom in a consistent and organized way. All children, particularly those with occupational therapy needs and sensory integration challenges, can benefit from a consistent classroom routine, carefully planned transitions, and movement breaks throughout the day. In addition, teachers can help these children become better organized, through giving children the time they need to process information and simplifying instructions. Kranowitz (1998) suggests that children with sensory difficulties might have trouble getting organized, and need support to overcome a feeling of chaos externally and internally. She suggests that these children are most comfortable when things are “exactly as they were yesterday and will be tomorrow” (p. 225).

Kranowitz (1998) offers several valuable strategies for managing the classroom and helping children become organized. These include developing a consistent routine: pictures of routines should be posted in the classroom where children can see them, and teachers should adhere to the schedule. In addition, the room should be arranged in a predictable way every day.

Moreover, Kranowitz (1998) encourages teachers to “plan transitions as carefully as lessons” (p. 226). Teachers can incorporate movement and rhythm into transitions. They might clap, or beat a drum to signify what is going to happen next. Transition fillers such as poems, or songs accompanied by motions, can “turn empty time into teachable moments” (Kranowitz, 1998, p. 226). Students should always be notified about impending transitions, and should be given plenty of warning when something out of the ordinary is going to occur. Sequential information regarding transitions or other anxiety-provoking events can be shared through Social Stories. Social stories are a social learning tool developed for people with autism. For children, these often appear as short, simple, illustrated stories that describe everyday events that children might find difficult or confusing, to relieve anxiety around those events or topics. They are used to teach communal skills and relieve anxiety for some children, through the clear presentation of precise and sequential information (Special Learning Inc., 2018).

Teachers should also plan movement breaks between and during activities. Some children need to fidget in order to regulate, so it is essential for teachers to provide acceptable ways for these children to move during the routine. Encourage them to stand and stretch, or march to a drumbeat, for example. In addition, opportunities for activities

like Simon Says (where nobody loses), follow the leader, jumping jacks, and relay races, should be incorporated into the structure of the day.

Kranowitz (1998) also recommends that teachers make eye contact when giving children instructions. These instructions should be concise and specific, and only one or two directions should be given at a time, depending on the readiness of the child.

Instructions should be repeated in this way. In addition, some children need more time than others to process directions, and answer questions. Teachers should allow children this time, and also let them know in advance if they will be called upon.

Teachers can also anticipate problems and help find alternatives for children. For example, Kranowitz (1998) suggests, “For the preschooler, going through an obstacle course at his own pace, after everyone else has completed it, is one possibility. If he resists a particular obstacle such as the balance beam or tunnel, let him be! Praise him for conquering the obstacles he can manage” (p. 231).

Finally, if a child distracted by too many choices, he might not be able to choose any: help him find an activity that he can do while socializing with just one or two other children. If in doubt, it can always be helpful to consult with an OT about activities and techniques to address the child’s specific needs.

### **5. Active Sensory Motor Experiences**

When occupational therapists work with young children, many of the activities they engage in involve sensory input and movement. Indeed, exercise stimulates the proprioceptive system, which relates to body awareness, and impacts levels of serotonin, a brain chemical that helps to regulate levels of arousal and alertness. In addition, movement can have alerting or calming effects on children based on the types of

movement involved: fast movement is alerting, while slow rhythmic movement is calming (Saunders, 2005). Children with autism, attentional challenges, learning disabilities (LDs), and Sensory Processing Disorders, can benefit from the regulatory effects of movement and exercise, as well as from opportunities to engage in multi-sensory activities (Luborsky, 2017).

**a. Movement Activities**

Newman & Kranowitz (2012) suggest that children should spend equal or more time actively moving than in sedentary activities. They write, “when children experience the three-dimensional world by moving within it, they can build a solid foundation for developing skills in all domains” (p. 7). These suggestions for movement activities that can be beneficial for all young children, not just those with OT needs.

Newman and Kranowitz (2012) recommend introducing novel ways of moving throughout the day. Children can be encouraged to jump, slide or gallop to their cubbies. They could creep on their hands and knees during clean up time. These novel movements can help strengthen the child’s muscle tone, and prepare the child for smaller distinct movements, like using scissors.

In addition, children can really benefit from spending time outside, and will often be motivated to move. Allow them to walk barefoot on the grass or sand, step in puddles, jump in leaf piles, and snow mounds. Messy activities like these promote neurological growth (Newman & Kranowitz, 2012).

Some movements give children confidence to handle life’s challenges successfully. Provide a large cardboard box for children to maneuver through or around. This will help them feel in charge of their bodies as they navigate a small space on their own. Moreover,

teachers can help children become aware of the space around them. Activities that promote spatial awareness include clapping bubbles between hands, tracking a flashlight beam with fingers, noses, and feet, and catching falling leaves or feathers on elbows. Any activity that involves watching a slow moving object trains the eye to move smoothly, a precursor to reading (Newman & Kranowitz, 2012).

#### **b. Multi-Sensory Activities**

In the theory of Sensory Integration, meaningful sensory-motor activity is a powerful mediator of neural plasticity and brain development. Multi sensory activities help children with attentional, behavioral, and sensory issues meet their needs in a socially acceptable, and safe way (Miller, 2007). The brain of a child with sensory integration disorder does not process sensory information in the same way as typically developing children. Children with sensory integration disorders might have defenses or cravings for certain sensory stimuli: a call for tactile, vestibular, or proprioceptive input. Children who are hypersensitive to some sensory input might become easily over-aroused and take action to try to keep this from happening. On the other hand, some children seek sensory input, and this might show through fidgeting behaviors and difficulty attending or staying put (Saunders, 2005). Educators need to provide appropriate activities to meet the child's sensory needs. Pediatric OT Judy Wilner suggests paying attention to material and activity selection: "Think about whether the activity/material is excitatory or inhibitory and how that relates to the child's needs" (personal communication, November 3, 2017). For some children, OTs and teachers collaborate to create a sensory diet designed to help a child achieve and maintain optimal sensory processing (Aldrich & Shelly, 2006). This is a plan developed to provide the optimal combination of sensations, at the right

intensities and times for a given child, to elicit appropriate responses to the environment. Strategies and activities to provide varied sensory input are designed to target and regulate various sensory systems, based on the specific needs of the child.

For example, activities done against resistance can be self-regulating, these include aerobic exercises, chores like carrying groceries, rough housing, tug of war, moving desks, carrying books, chewy snacks, and chair pushups. These activities provide proprioceptive input, which involves body awareness (Saunders, 2005).

The vestibular system, which involves balance, is also involved in self-regulation. Activities that stimulate the vestibular system include jumping games, bouncing on a therapy ball, rocking in a rocking chair, swinging, and trampoline jumping. These activities can be calming or alerting based on the type of movement they involve: slow rhythmic movement is calming, whereas fast movement is alerting (Saunders, 2005).

Finally, for many children, tactile input such as pressure touch is calming and enhances dopamine to reduce stress (Saunders, 2005). This can be achieved by providing back rubs, pressing a child between two mats or beanbags, rolling a therapy ball back and forth over the child with downward pressure, and giving hand hugs, or self-hugs.

## **6. Adapting One's Own Behavior**

Teachers can learn from therapists in intentionally adapting the ways they behave with and around young children. Many successful teachers already engage in the following behaviors, but it is an important reminder that all children, particularly those with disabilities, need to feel understood, respected, supported, and included in order to fully participate and benefit from the learning environment.

Teachers should emphasize the positive and praise children for their accomplishments. Give each child, in words of Carl R. Rogers, “unconditional, positive regard” (Kranowitz, 1998, p. 231). Reward children for what they accomplish: “The out-of-sync child needs constant assurance that her efforts are appreciated and worthwhile. She may not feel competent, even when she is!” (Kranowitz, 1998, p. 231). Teachers should also keep their voices low. Hearing high-pitched or loud voices can be uncomfortable for children with sensitive auditory systems. In addition, providing physical feedback to children can help them focus and feel connected. Teachers should get close and look the child in the eye. It can be helpful to press on a child’s shoulders firmly while speaking to them (Kranowitz, 1998).

Finally, keep your expectations realistic. Teachers need to let children know that it is okay if a child doesn’t complete a task or does it differently from the other children. As Kranowitz (1998) writes, “remember what is most important in learning: process rather than product, and participation rather than perfection” (p. 232).

### **Curriculum Approaches**

Through intentional and meaningful adjustments to the environment, curriculum, and interactions with children, early childhood educators can extend the work of occupational therapists and support the needs of their young learners. Furthermore, occupational therapy offers a unique perspective on how young children learn and the optimal conditions in which they can fully participate and engage in the classroom environment. These strategies and activities, which were designed to help children with various developmental variations in a therapeutic setting, can actually help every child to

learn and develop cognitive, physical, sensory, and motor skills, and enhance self-esteem and sense of accomplishment. In the words of Carol Kranowitz (1998):

“Every child benefits from a safe, calm, and distraction-free environment. Every child requires occasional breaks from work to move and stretch. Every child needs to know that someone is paying attention to his strengths and weaknesses, likes and dislikes, ups and downs. [...] Every child needs assurance that it’s okay to have differing abilities, that he can be successful, that his ideas have merit, that his personhood is valued” (p. 221).

The Universal Design for Learning (UDL) approach emphasizes access to learning for all students, and involves flexibility, simplicity, perceptibility, and efficiency in the multiple ways information is presented, and expressed. This approach involves the design of activities, assessments, and materials that aim to meet the needs of children with a wide variety of backgrounds and abilities. As a result, UDL allows students to participate in learning through drawing on their own unique strengths, weaknesses, and preferences (American Occupational Therapy Association, 2015). Occupational Therapists often play an important role in supporting the implementation of UDL and can recommend and adapt activities to facilitate learning for all students. Incorporating strategies that are universally designed makes learning accessible to all children and therefore not only provides needed support to students with varying needs, but also provides all the other students in the classroom with meaningful learning opportunities.

There is sometimes conflict between classroom teachers and occupational therapists when teachers are concerned about changing their classroom structure or schedule to accommodate and integrate OT practices that just one or two children need (Barnett & O’Shaughnessy, 2015). However, these strategies can be beneficial to all children, particularly if applied intentionally in the context of an informed curriculum. All children benefit from hands-on, active learning experiences that stimulate their senses



(Miller, 2007). Through the Universal Design for Learning approach, teachers can make learning accessible to all children.

### **III. Speech-Language Therapy**

#### **Introduction to Speech-Language Therapy**

*What is Speech-Language Therapy? Who are Speech-Language Pathologists?*

Speech-language therapy is a broad term that refers to many types of therapies that Speech-Language pathologists provide for children (Speech and Language Kids, 2016). Speech-Language pathologists (SLPs) are licensed professionals that support children with speech and/or language disorders. They assess speech, language, communication, and feeding skills, to identify communication problems and how to treat them. SLPs also work with children that have oral feeding disorders (Crenshaw, 2015).

*What is a speech disorder? What is a language disorder?*

A speech disorder indicates a difficulty related to the production of sounds. A language disorder indicates a problem understanding or putting words together to communicate. Speech disorders include articulation disorders, fluency disorders, and resonance, or voice disorders. Language disorders can be receptive, which refers to difficulties in processing language, or expressive, referring to difficulties in putting words together or the inability to use language in a socially appropriate manner (Crenshaw, 2015).

*Who Benefits from Speech-Language therapy?*

There are many reasons children might need speech-language therapy. These include hearing impairments, developmental delays, weak oral muscles, birth defects, autism, motor planning problems, articulation problems, fluency disorders, and traumatic

brain injury, to name just a few (Crenshaw, 2015).

*What is the teacher's role in the development of speech and language skills?*

Teachers play a variety of important roles in the language development of students, and therefore also can have a significant influence on the development of children with speech and/or language delays and disorders. Wong-Fillmore and Snow (2000) describe the roles of teachers as communicators, educators, evaluators, and agents of socialization, among others. They suggest that the “Teacher as Communicator” (p. 5) must have a firm understanding of educational linguistics, in order to structure her own language output for maximum clarity. Teachers should also develop strategies to understand what their students are saying. This is especially relevant for teachers of second language learners, and teachers of young children. Furthermore, the “Teacher as Educator” (p. 7) needs to know about language development to select educational activities that support language development, and to recognize issues that need attention and intervention. Finally, the “Teacher as Agent of Socialization” (p. 11) refers to the critical role that teachers play in facilitating the child’s transition from home to school (Wong-Fillmore & Snow, 2000).

In addition, the majority of infants and toddlers receiving early intervention (EI) services have communication delays or disorders, and SLPs are the most frequent providers of services to infants and toddlers with disabilities (Polmanteer & Turbiville, 2000). EI service providers recommend that all persons that are present in the child’s life, including babysitters, family, and teachers, should be involved in supporting the child’s communication development (Polmanteer & Turbiville, 2000). This is necessary to

ensure consistency and facilitate implementing strategies to improve communication across all the child's environments.

### **Strategies**

The strategies itemized below are based on observations and discussions with two SLPs, Jennie Portney and Denise Colina, as well as empirical research and publications about how children learn language and what supports are effective. The list is far from complete, as there are many other effective techniques that are used to support speech and language development in children of all ages and abilities.

#### **1. Total Communication Approach**

As in the Occupational Therapy section, the strategies that follow should be applied with the child's individual differences in mind. Speech-Language pathologist Denise Colina uses a "total communication approach" (Denise Colina, personal communication, January 20<sup>th</sup>, 2017). This approach involves presenting a variety of modalities at once, and then watching to see what works for the child. For example, some children respond to visual learning strategies, such as sign language, whereas others benefit more from phonemic cues, which involves prompting children to say a word by giving them the first sound of the word. By approaching the child with multiple strategies, the therapist is able to target a range of skills and abilities, and does not waste sessions providing supports that might be less effective for that particular child. Moreover, the therapists noted that these strategies are effective for all young children, particularly for those acquiring language for the first time. In addition, it deserves mention that teachers often naturally employ some of these strategies, such as slowing down speech and using gestures. However, when a child has language deficits, teachers need to be intentional in their use

of language supports for that child. Once teachers have figured out what strategies work best for the child, they can provide the supports that work in an intentional and child-focused manner.

## **2. Environment-Focused Approaches**

Speech-language therapy for young children with primary language impairment takes several forms. A child-focused approach involves identifying and addressing aspects of the child's cognitive, linguistic, and social development, and directly intervening to elicit progress in the child's communication (Pickstone et al., 2009). Another approach that is often used in conjunction with child-focused approaches is an environment-focused approach. Environment-focused interventions are founded on an ecological view of development, with particular emphasis on the influence of the child's environmental factors. This dynamic systems view, prominently expressed by Urie Brofenbrenner, places development in the context of "interacting sociocultural systems in which human development occurs from the microsystem of the child's immediate context to the macrochronological system of the child's cultural heritage" (Pickstone et al., 2009, p. 9). Therefore, the idea behind environment-focused approaches is that in changing features and behavior in the child's environment, there can be progress in the child's communication. In other words, the environment needs to be adapted in order to facilitate the child's communication (Pickstone et al., 2009). Bunning (2004) suggests that the communication environment includes: underlying values of setting and relationships between individuals, people present in environment (and their style of communicating, sensitivity, and attitudes), conditions of the setting (like formality and reasons for communicating), and activities available in the setting.

In practice, these types of interventions might involve intentional planning of curriculum and room structure around the needs of a particular child, or children, in that classroom. Teachers might make such changes in conjunction with the SLP. For example, small group work limits sensory stimuli. Speech-Language pathologist Denise Colina explained that working with children in smaller groups creates an environment that is conducive to eliciting language from children who are quiet or inattentive. Colina works in a quiet and small room, around a table with up to three children. In order to make any progress in language, the adult needs to have the child's attention, so the environment in which therapy sessions are conducted is structured to remove distractions and engage the child's attention to the language (personal communication, January 30, 2017). When working in a small group, Colina intentionally places each child in a specific position at the table that facilitates the session. For example, one child who has more difficulty maintaining attentiveness might be seated in a chair against the wall, to prevent her from moving her chair around or standing up. Another child who tends to wiggle in his seat might be given a pad to sit on, to prevent him from sliding around in the chair. Small environmental details like these make large differences in progress during a session, because when the child is grounded and distracting stimuli is eliminated, he or she is ready to listen and produce language.

In addition, environment-focused approaches in early intervention often involve training teachers and parents, people other than the therapists, who are frequently present in the child's environment. These individuals can be trained in techniques used by the therapist and are encouraged to adopt these strategies with the child (Pickstone et al., 2009). Teachers should have an open dialog with the speech-language therapists that

work with their students, and they should structure the classroom's physical and communication environment to mediate arousal and facilitate learning language. Overall, attention to the environment is arguably the most important strategy, because it both underlies and encompasses the more specific strategies that follow.

### **3. Using Books**

Books and other literacy materials are helpful tools for the early childhood educator and language specialist to promote early literacy in young children. Positive interactions with books, which can be facilitated by adults, promote continually developing language and literacy skills. If provided with developmentally appropriate books and opportunities to interact with them, infants and toddlers can learn about language and literacy through behaviors such as physically manipulating books, looking at and recognizing pictures, and verbally interacting with books (Zero to Three, 2003). Indeed, when working with children of various ages and abilities, teachers need to use books that are developmentally appropriate, in order to create literacy-rich experiences in informed and intentional ways. Teachers should be aware of the characteristics that children of different ages prefer in books, in order to select books that can be used in developmentally appropriate ways. For infants and toddlers, this includes books with few words on each page, chunky books for infants to manipulate, familiar themes and pictures such as animals and other children, or balls and bottles for babies, and books that include simple rhymes (Zero to Three, 2003). In addition, productive ways to engage children and to create positive experiences include using books every day, singing about the pictures (no need to read the words), letting the child turn the pages, using an expressive voice and body language to tell the

story, showing the words with a finger from left to right, and talking about the story by asking questions or connecting it to the child's experience.

Teachers should select books for the classroom that are personally relevant to the experiences of the children in the classroom. For example, at the beginning of the school year, books might involve themes of separation and returning. In addition, if a child is preparing to have a younger sibling, teachers might provide books about siblings, babies, and sharing. The teachers can use these books to talk to children about their personal experiences, and to engage the children's interests and curiosity. Knowing the child's context outside of school can help to engage them in conversation, so it is important to talk to parents about what the child has been doing, and what she is interested in.

While the use of books in developmentally appropriate ways is helpful to all young children developing language, it can be especially beneficial to use books to support children with language deficits. During a therapy session, SLP Denise Colina used a book with a three-year-old child whose vocabulary is very limited. Colina was holding a book at the child's eye level, called "Roar! Roar!" On each page there was a picture of a jungle animal behind a flap that could be lifted (personal communication, January 31, 2017):

Colina (speaking very slowly and clearly): Who is hiding behind the flap? I say Roar! Roar! I am a...

Child: Lion!

Colina: You think it's a lion. (She lifts the flap and reveals the picture of the lion.) You were right. There was a lion hiding behind the flap.

This continued with several more animals on each page. The child also tried to reach over to lift the flap and Colina said: "You can say 'I want to lift it!'" The child then repeated this back, and Colina brought the book to her so that she could lift the flap.



In this example, the therapist used the book in ways that engaged the child and, via the total communication approach, used the book as a platform from which to elicit speech and language through other means such as scaffolding language and cloze sentences. She also provided the child with a direct language model to use imitatively. Therefore, teachers should use books in developmentally informed ways, in order to maximize the child's language learning potential and support young children with speech and language deficits.

#### **4. Involving Peers**

Language is by nature a social communication tool, and early interactions with peers can be crucial in promoting the development of social and pragmatic language. Teachers and therapists can facilitate these early cooperative social interactions by deflecting communication to other children, especially in the classroom setting where teachers are responsible for more than one child. In Jennie Portney's speech-language therapy sessions, she tries to avoid filling the time with her own voice. She wants to give children time and space to communicate, and her role is to help children practice language. She asks rhetorically, "is this your speech session, or is it the child's?" (personal communication, January 29, 2017). Indeed, when she works with more than one child, which she often does, she uses a variety of strategies to encourage social language production. "You can have children do things for each other," she adds, "Children love responsibility." This is an example of one such interaction in which Denise Colina and Jennie Portney are in the speech therapy room during snack time with two children Marie and Claire (pseudonyms), both two years old (personal communication, January 29, 2017).

Claire points at a banana and says “more”.

Colina: You want more bananas. (Enunciating the ‘m’ and ‘b’ sounds at the beginning of the words).

Claire: More bananas!

Colina: Ask Marie for more bananas. You say, “Marie, may I have more bananas?”

Claire (turns towards Marie): May I have more bananas?

Marie pushes the bowl of bananas over to Claire.

Marie: Hee goo

Portney (scaffolding Marie’s utterance): You said, “Here you go!”

In this example, we can see that the therapists are deflecting Claire’s request for more bananas to her peer, Marie. In doing so, they are not only creating an opportunity for Claire to use social language, but they are also eliciting language from Marie. Teachers can use these strategies in the classroom, especially in inclusive and mixed age settings where children’s abilities and developmental levels differ considerably. This benefits the child who needs the extra support with language, and also provides an opportunity for the typically developing child to practice his or her own social and pragmatic language skills.

## **5. Visual Aids and Sign Language**

According to SLP Jennie Portney, when supporting children with language delays it is important to “make use of multiple intelligences and modalities, and simply stated, children are visual learners” (personal communication, January 29, 2017). Indeed, Levine (2001) cites visual reinforcement as effective supports for children with language deficits associated with chronic misunderstanding and deficient output. He suggests that children with phonological deficits, or problems with the sounds of language, depend on visual configuration and context cues to understand language in school. Using visual

reinforcement might help these children by allowing them to visualize during oral directions. Teachers might use a visual schedule board to reinforce the structure and routines that take place during the school day. This might include pictures of different parts of the day, such as arrival, free play, snack, and nap, and teachers can point to each picture when reviewing what's already happened, and what will happen next. This can help children with weak language processing to understand the structure of the day, so that they might feel more prepared during transitions. It also provides labels for the various experiences they have throughout the school day.

In addition, children with weak language skills can benefit from nonlinguistic modes of expression (Levine, 2001). In speech and language therapy, American Sign Language (ASL) is often used to make language visual, and to facilitate sentence expansion (Jennie Portney, personal communication, January 29, 2017). This can be effective for children who struggle with speech: while speech is a fine motor act, ASL is a gross motor act. This offers an alternative to children who are working on their fine motor skills. In addition, a study showed that young children with language impairments learned twice as many new words when they were taught through both speech and sign, rather than just through oral modeling alone (Robertson, 2004). In their sessions, speech-language pathologists Portney and Colina often pair language models with signs and gestural cues. Portney explained, "If you use a sign, you are making language visual and more concrete. You can elicit more language from the child" (personal communication, January 29, 2017). While Colina and Portney emphasize that sign language should not be a substitute for speech, they maintain that it is an effective tool for children to use to communicate,

especially when paired with spoken language, because it activates the same area of the brain as spoken language.

## 6. Playing Games

Another strategy involves eliciting language through play and developmentally appropriate games. Indeed, the American Speech-Language-Hearing Association (2000) acknowledges the value of play for increasing function for children with speech and language delays or disorders: “Language is taught in a natural setting. It is presented at the child's developmental level; responses are consistently stimulated; and output is rewarded. Play may be used to teach communication, language models or rules of conversation, such as turn taking” (p. 2). Games as simple as peek-a-boo allow children to learn patterns and sequences, which are essential concepts to master in language development (Learning Disabilities Association of America, 1999).

Games can include direct strategies, such as cloze sentence cues where children are given sentences with words missing. In this session (personal communication, February 4, 2017), SLP Portney engaged three children (Claire, Marie, and Luke, pseudonyms) in a guessing game that involved completing cloze sentences:

Jennie was using animal puppets that she would bring to the child's eye level, and place close to her mouth in order to direct the child's attention to her lip movements.

Jennie (shows monkey puppet): Who eats bananas and says “oo oo aah aah”?

Claire (after a pause): Monkey!

Portney: Yes. I am a monkey!

Portney (shows rabbit puppet holding a carrot): Hello! I'm a bunny and I like to eat.... (Pauses and brings the puppet to Marie's face).

Marie: Carrots!

Marie tries to grab the puppet.

Portney: You can say, "Let me see the puppet!"

Marie: Let me see the puppet!

Portney hands Marie the puppet. Luke cries, looking at the puppet.

Portney: Luke, it looks like you want a turn with the puppet. You can say "My turn!"

She gestures with a hand to her chest as she says this.

Luke then independently brings his hand to his chest but does not say anything.

In this instance Luke, who was not yet producing verbal language, used a gesture to communicate his desire, which was motivated by the inclusion of props in a turn taking game. In addition, the game facilitated the use of cloze sentence procedures, which uses a verbal description to provide support in producing language. Portney notes that when using this strategy, it is important to pause and give the child time to respond (personal communication, February 4, 2017).

## **7. Music and Songs**

Music and singing can help children with speech and language disorders, because listening to or singing along with music, including the rhythm, beat, cadence, and lyrics, uses the same neural circuits as expressive speech. SLPs can use young children's interests and abilities to sing along with music, as a way to help children with delayed language and speech skills to communicate (Integrated Learning Strategies, 2016). Levine (2001) encourages the use of music and rhythmic activities for children with weak language processing in order to reinforce language sound appreciation. In the classroom, teachers can use songs during transitions to engage the children's attention. A study conducted in 2010 showed that music therapy improved the phonological capacity and understanding of speech for a group of children with delayed speech development. A mechanism for this might be because music increased joint attention with the therapist.

Music also trains the child's reproduction capacities of phonologic and rhythmic structures, which might play an important role the child's language development (Groß, Linden, & Ostermann, 2010).

In addition, SLPs Portney and Colina suggest that singing is especially helpful for children with speech dysfluencies, because it elicits smooth speech and helps with recalling information. They use singing and rhyming frequently during their work with children. For example, in a therapy session with a small group of three and four year olds, Colina sang from a book called "Seals on the Bus", which used a familiar song (wheels on the bus) to introduce new vocabulary. The rhyme included lots of repetition, which reinforces the words and emphasizes the phonemes that Colina was working on with this group of children (they were working on the 's' sound) (Jennie Portney & Denise Colina, personal communication, February 4, 2017).

## **8. Talking and Narrating**

Research has made it clear that exposure to language in the early months and years is key to brain development and later language development. Speaking to young children helps them form crucial connections in the brain that will set the foundation for language acquisition (Learning Disabilities Association of America, 1999). Furthermore, the infant's early environment and context deeply affects how reasoning, perception, and language develop. Vygotsky theorized that language is a co-construction between child and caregiver: this places increased emphasis on the critical role of teachers and caregivers in a young child's language development (Vygotsky, 1962). In addition, Wong Fillmore and Snow (2000) describe the role of teacher as communicator, and suggest that teachers should structure their own language output for maximum clarity. One way to

support children's language development is by talking to them, and narrating the child's experiences can be an effective way of doing so. Narrating and labeling objects and actions helps children make connections between words and what they indicate (Learning Disabilities Association of America, 1999). Therefore, teachers should use rich vocabulary that describes what the child is doing, feeling, and hearing throughout the day in order to expose children to a language-rich environment. This provides children with the opportunity to learn language and creates a connection between the child's experience and the teacher's words. In addition, engaging the child's attention is crucial, as one study showed that children whose mothers encourage joint attention to objects, and supply labels for them increase their vocabularies faster (Campbell & Namy, 2003). For this reason, it is effective to engage the child by focusing on what they are interested in, and provide the words at that moment, instead of trying to direct their attention elsewhere to teach vocabulary.

Preschool teachers can use a technique called parallel talk, a responsive teaching technique that involves describing a child's actions (Colina, personal communication, February 4, 2017). For example, when children engage with and manipulate sensory material, teachers engaging in parallel talk would comment on the process and use language with the children as they "pour, splash, dig, scoop, squish, mold, poke, and roll" the different materials. While this strategy can be helpful for all young children in acquiring language, SLPs use it very frequently in their therapy sessions with children exhibiting speech and language challenges. Indeed, SLPs Denise Colina and Jennie Portney often narrate and comment on children's actions and experiences. Jennie says this is an effective strategy to use when "pushing-in," that is, when she conducts her

therapy sessions in the classroom (personal communication, January 29, 2017). In this instance, observed during snack time in the child's classroom, Jennie used parallel talk to describe the child's experience as well as to describe her own actions:

Jennie (as she hands out muffins): One red muffin for Marie, one red muffin for Timmy, one red muffin for Luke.

The children begin to eat.

Jennie (speaking very slowly, with lots of affect in her tone): Yummy! So yummy! Everyone is eating red muffins.

Jennie later suggests that when working with children that need extra support in language, teachers should intentionally slow down their speech and use simple and clear language when narrating the child's sensory experience (personal communication, February 12, 2017).

## **9. Listening and Responding**

In order to support speech-language therapy and the development of communication in children, it is critical to listen and respond to children's attempts at communication. Levine (2001) claims, "Successful output perpetuates motivation, feelings of overall effectiveness, and stable self-esteem" (p. 142). Therefore, adults need to acknowledge and praise any effort a child makes to communicate, which can help to create a positive association with language. Listening and responding to children is equally important at different ages and developmental levels, and the Learning Disabilities Association of America (1999) suggests that caregivers can encourage language development by responding to infant coos, gurgles and babbles. They also recommend that adults listen to children attentively, and look at them when they are talking. This might be especially beneficial for children with speech and language disorders. For example, in the therapy



room, SLPs Denise Colina and Jennie Portney always respond to children's utterances. If these utterances are incomplete or unintelligible, the therapist might respond by scaffolding the language, letting the children know that they are understood, while also providing them with language supports to communicate their thoughts or desires. In this instance, Colina was providing Timmy (pseudonym) with a choice between a felt picture of a red hat or a blue ball (Denise Colina, personal communication, February 6, 2017):

Colina: Do you want the blue ball or the red hat? (Indicating the pictures and enunciating the consonants)

Timmy (pointing to the ball picture): Ba!

Colina: You said "Ball." You want the blue ball. (Hands Timmy the blue ball picture)

In another instance, the child spontaneously commented on an object in her environment (Jennie Portney, personal communication, February 6, 2017):

Marie (pointing to a picture of a zebra on the wall): Ra!

Portney: Oh! Marie sees a zebra! Can you say ZEEE-BER-AH? (Enunciating and bringing her face close to Marie's)

On these occasions, as in many other cases during the sessions observed, the therapists acknowledged and responded to children's utterances. Portney mentioned that for some children, it can be a big leap forward when they begin to produce spontaneous, rather than imitative, language (Jennie Portney, personal communication, January 29, 2017). It is important to praise these efforts and encourage further communication.

### **10. Meeting Children Where They Are**

Finally, SLPs Colina and Portney explained that there is a hierarchy of language models that can be offered to children, and the goal is to gradually reduce the amount of modeling so that the children may begin to produce language on their own. The highest level is direct language modeling, which basically involves telling the child what to say.

In direct language models adults are providing the language for the child to imitate back to the adult. Phonemic cues involve modeling the first sound of the word that you want to elicit from the child. For example, Colina points to a picture of a monkey and says, “What’s this?” If the child does not answer after some time, she might provide a phonemic cue by saying “M”. This might help the child say the word “Monkey”. However, if the child does not say it, Colina might add “Monk....” Eventually, the goal is to have the child answer the question without cueing, but this requires a gradual and sensitive reduction of language cues (Jenney Portney & Denise Colina, personal communication, January 29, 2017).

This idea of providing the right amount of modeling that will challenge the child while still giving them the opportunity to use language, highlights the importance of tracking the child’s progress in order to meet them where they are.

### **Curriculum Approaches**

The strategies described in this section can be beneficial to all children. Speech-Language Pathologists also play an important role in the design and implementation of the Universal Design for Learning (UDL) curriculum.

While UDL is designed for children with disabilities, all children can benefit from the supports that UDL provides. For example, children with hearing impairments could benefit from video captioning, because it gives them a visual representation of speech. However, video captioning is also likely to benefit children in a noisy classroom environment, English language learners, and children with reading difficulties (American Speech-Language-Hearing Association, 2018).

SLPs can provide insight around adapting instruction to meet the individual needs of children with speech and language disorders according to the principles of UDL. Three UDL principles guide the adaptation and modification of instructional methods: representation, expression, and engagement. SLPs might spend time modifying materials, and developing resources for specific students according to these three principles. For example, they might suggest various ways of presenting information to students, such as through digital text, audio, and video, with captioning. They might also design ways for students to express themselves, including the use of assistive-technologies, physical manipulatives, and interactive web tools. SLPs can also assist teachers in providing multiple means of engagement for students. This might involve pairing students with peers for small-group activities, allowing children to choose topics of interest, and developing consistent attention-getting techniques that use visual and auditory cues (Ralabate, 2011). As a result, the UDL framework allows SLPs, teachers, and other professionals to teach effectively in a classroom with diverse needs.

## **IV. Physical Therapy**

### **Introduction to Physical Therapy**

#### *What is Physical Therapy?*

Physical therapy aims to improve the daily function and movement ability of children and adults with a range of injuries, illnesses, diseases, disorders, or conditions that affect their movement and functional ability. Pediatric physical therapists (PTs) work with children, their families, and their schools to help children reach their maximum potential to function independently, and to participate actively at home, at school, and in the community (Horwath, 2017).

#### *Who benefits from Physical Therapy?*

Many illnesses, disorders and disabilities in childhood prevent or delay the development motor function, including Cerebral Palsy, Autism, Down Syndrome, Muscular Dystrophy, Spina Bifida, Juvenile Rheumatoid Arthritis, Cystic Fibrosis, Cancer, and Traumatic Brain Injury. Physical therapy can help treat motor skill issues for children with these conditions. In addition, PTs work with children exhibiting gross motor delays without a formal diagnosis, including children with hypotonia, and developmental coordination disorders (Horwath, 2017). Gay Rosenberg, a pediatric physical therapist practicing in New York City, believes that anyone can benefit from physical therapy: “The bottom line is that everybody can get stronger. Everyone benefits from activities that strengthens their bodies and their cores.” Children with weak cores in particular benefit from physical therapy, Rosenberg explains: “When children have a weak core it affects their coordination. If you think about doing anything with your extremities, like lifting something, it won’t be as efficient if your core is weak because

you have less stability: your limbs move from your trunk. This is true for children and adults” (personal communication, August 1, 2018).

### *What do Pediatric Physical Therapists do?*

Pediatric physical therapists evaluate and provide treatment plans for children with gross motor delays or disabilities, and work on promoting the strength and flexibility needed to navigate the environment effectively. During physical therapy sessions, children might work on developing flexibility, posture, gait, core strength, balance, and coordination. PTs incorporate motivational factors and play into functional activities in order to engage the child. They also might recommend adaptive equipment, orthotics, and assistive technologies that can further aid the child in developing gross motor skills, or independently moving in their environments (Horwath, 2017).

## **Strategies**

The strategies indicated here are based on observations and communications with pediatric physical therapists Gay Rosenberg and Jim Harrison, as well as empirical research and publications about physical therapy, gross motor development, physical education programs for children with disabilities, and effective classroom supports for preschool children with gross motor delays and other developmental variations.

### **1. Collaboration with Physical Therapists**

The strategies that follow need to be modified to meet the needs of individual children. This involves addressing specific areas of challenge, while keeping in mind the child’s strengths and motivations. Often, the child’s physical therapist will be a knowledgeable source of strategies that work for that particular child.

Teachers are essential collaborators when it comes to facilitating the work of physical therapists, and the progress of the shared child. A study by Sekerak et al. (2003) aimed to identify factors that contribute to the success of integrating physical therapy services into the classroom routine through interviewing ten pediatric physical therapists. Among the top factors that emerged in their answers was the importance of collaboration, cooperation, communication, and support between PTs and classroom personnel. Indeed, the therapists interviewed consistently described teachers as “the foundation on which successful integration is built” (Sekerak et al., 2003, p.96). For this to be the case, teachers need to be flexible with adapting parts of the classroom environment or curriculum, and open to listening to the therapist’s ideas and suggestions. The study also highlighted the importance of mutual respect: for successful collaboration to happen, PTs and teachers need to “value each other’s skills and purposes” (Sekerak et al., 2003, p. 96).

Physical Therapy is different than Occupational Therapy and Speech-Language Therapy in that it is sometimes more difficult for PTs to conduct “push-in” therapy sessions in the classroom, often due to a lack of space or appropriate equipment for gross motor work. For this reason, it is also harder for PTs to instruct teachers in the classroom environment. Despite these challenges, it is still very important for teachers and PTs to work together. Rosenberg believes that students and teachers could benefit from teachers coming to therapy sessions with children, but she understands that this isn’t always possible: “teachers are overwhelmed, every change in the schedule is a big deal.” She suggests that school administrators could arrange a structure that allows for teachers to attend occasional physical therapy sessions (personal communication, August 1, 2018).

Teachers also need to be aware of strategies that can facilitate collaboration with PTs. “One way to do this,” suggests Gay Rosenberg, “is by giving kids a head’s up about upcoming PT sessions. Children need to be ready to go, you don’t want to be interrupting them in the middle of something. This makes a huge difference for the quality of the session!” (personal communication, August 1, 2018). Teachers should memorize their children’s therapy schedules, and be able to warn children several minutes before they are due for a PT session to ensure that the child is prepared for the transition of leaving the classroom.

In addition, PTs can share valuable information about behaviors that are detrimental to the child’s progress. Teachers should seek out this information from PTs so that they can correct negative behaviors when they occur in the classroom setting. For example, W sitting can be a problem for some children, and it is important for teachers to be aware of this and to know when to correct them. “W sitting” is when children sit on their bottoms with their lower legs folded outwards. Rosenberg explains, “when children are W sitting this creates a wider base of support, so that the core isn’t working to hold them upright. This will contribute to a weaker core and put the child in more of a rounded position” (personal communication, August 1, 2018).

Another way in which teachers should collaborate with PTs involves optimizing the classroom environment to meet the movement needs of all children (Sekerak et al., 2003). Teachers should consult each child’s physical therapist about how to ensure that the classroom environment is optimal for that child, in terms of accessibility and facilitating gross motor development. When PTs enter the classroom they can assess the children’s equipment in the classroom, and can make recommendations for accommodations, such

as different seating arrangements that can improve the child's posture and balance, or advice about the organization and arrangement of space. It is crucial for teachers to seek out and welcome this advice from physical therapists, particularly if there are children in the classroom with physical disabilities or motor delays.

As an added benefit, when PTs have a say in the classroom arrangement, they might be more likely to work with the child in the classroom. Sekerak et al. (2003) reported "if the therapist feels at home in the classroom, and has had the opportunity to collaborate regarding classroom arrangements, routines, and activities, then the therapist is more likely to be comfortable incorporating intervention into those routines and activities" (p.101). This is important because when the child learns a skill in her natural environment, less transfer of skill is required, and there is therefore an increase in her functional use of skills during non-therapy times (Sekerak et al., 2003). Therefore, whenever possible, teachers should encourage PTs to come work in the classroom, and they should be open to suggestions about how to make the space more accommodating for physical therapy.

## **2. Classroom Arrangement and Organization**

When a child has a gross motor delay or physical disability, the classroom's physical environment is critical to her learning experience and ability to function alongside her typically developing peers. Several factors in the physical classroom environment should be considered when developing a space that is suitable to the needs of young children with varying physical abilities.

To begin with, the classroom layout and amount of space in the classroom affects children's movement opportunities. Too large of a classroom can be distracting, or



disorienting, due to an excessive amount of open space. Too small of a classroom, particularly one that is crowded with furniture, prevents optimal physical activity and limits movement opportunities (Sekerak et al., 2003). The classroom's physical layout and organization not only affects movement and gross motor development, it also has a deep impact on the learning and overall development of children with physical limitations. Indeed, if a classroom is too crowded with furniture, this will limit the child's ability to move, which can pose challenges when engaging with peers. Children may have difficulty physically approaching other children for play, and they may compensate by shouting from a distance. They may also struggle to participate in all classroom activities, and as a result be left out by peers (Recchia, 2013).

When considering how to adapt the physical layout of a classroom, teachers should aim to create an environment that accomplishes the goals of enabling participation in group activities while supporting independent movement. This often requires adaptations because allowing the child to take his time and move independently can conflict with giving him opportunities to participate alongside his peers. For example, a child with physical limitations might need more assistance to be a full participant in social play, as she may not be able to engage in many of the physical aspects of the activity on her own. Therefore, teachers must consider ways to change the physical environment, as well as the nature of activities within that environment, so that physical mobility does not play such a significant part in social relationships (Recchia, 2013). In *Inclusion in the Early Childhood Classroom: What Makes a Difference*, Susan Recchia (2013) describes the value of having a flexible space, in which activities and objects can be easily moved around the classroom: "Physical environments need to be adapted not only to honor an

individual child's experience but also to integrate his or her experience into the fabric of the classroom activity. At times, this adaptation may be as simple as moving an activity from one corner of the room to another" (Recchia, 2013, p.33).

When creating an inclusive classroom environment, it is important that all areas of the classroom are accessible to all children. All pathways should be clear of clutter, such as misplaced toys or chairs, that obstruct the movement of children with physical disabilities. Teachers should be aware of clutter that accumulates during play, and encourage children to put toys away when they are finished so as not to impede any child's path from one area of the room to another. In addition, the paths in the classroom should be wide enough for assistive equipment like wheelchairs, crutches, and walkers (Doctoroff, 2001). As Sandra Doctoroff (2001) has written, "children should never be denied access to a play area due to a physical or visual impairment" (p.105-106). Doctoroff (2001) suggests that all loft areas have accessible ramps when possible, otherwise children who use wheelchairs or walkers would not be able to access that space.

Teachers should also consider the placement and arrangement of materials in the classroom. Materials should be positioned in areas that are accessible to children with motor impairments. A child who uses a wheelchair, for example, may not be able to reach materials on shelves that are above or below her reach from a seated position. Doctoroff (2001) suggests placing materials on shelves at varying heights, to adapt to changes in the child's positioning over the course of the day.

### **3. Furniture, Materials, and Assistive Equipment**

In addition to the layout and organization of the classroom space, teachers should consider how the furniture in the classroom can be adapted to meet the needs of children with physical limitations. For example, PTs may recommend assistive equipment for some children, such as adapted chairs that support the child's posture and stability. Furniture can be easily adapted to meet the needs of children when classrooms include tables and chairs with adjustable heights. It can also be helpful to create slant boards, to support the emerging writing skills of children with physical disabilities.

Play materials must also be considered when adapting the physical classroom environment. Some play materials may need to be adapted to meet the needs of children with motor delays or physical disabilities. PTs may be able to assist teachers in identifying and creating these adaptations. For example, cerebral palsy often has an effect on the child's ability to grasp and manipulate materials. Adaptations can be as simple as adding knobs to puzzle pieces, or wrapping certain objects in tape and foam to facilitate grasping (Doctoroff, 2001). In addition, certain physical impairments, including cerebral palsy, can cause children's hands to be unstable as they attempt to reach a desired object. This can result in objects being knocked over or pushed out of the child's reach. In these situations, Doctoroff (2001) recommends creating barriers around moveable objects, which can be done by placing them on a tray with edges, or inside a hula hoop on a flat surface. Teachers can also stabilize materials by placing sticky plastic material, such as Dycem, under the object to stop them from slipping. Teachers can consult with PTs for additional ideas about simple adaptations that can be made to classroom materials.

Sometimes it may be impossible to adapt a toy that is already present in the classroom. Fortunately, many adapted toys, specialized equipment, and assistive technologies exist to meet the needs of children with varying physical abilities. Physicians and PTs might recommend orthotics for some children, which are custom-molded leg braces or shoe inserts that are designed to improve body alignment, stability, and improve function (American Physical Therapy Association, 2009). In addition, some students may be entitled to certain assistive devices in their individualized educational plans (IEP). Adaptive switches, for example, allow some children to interact independently with their environments, and are commonly used for children with severe impairments in the use of their hands (Doctoroff, 2001). Many resources are available online and in print with information about assistive technologies and orthotics (see American Physical Therapy Association, 2009; American Physical Therapy Association, 2007, for more resources and information). Overall, teachers can meet the needs of all children by providing a variety of developmentally-appropriate materials, including toys that are easier to grasp and manipulate. This will benefit all children, whether or not they have a diagnosis that affects movement.

#### **4. Movement and Exercise in the Routine**

An important way in which teachers can support the work of physical therapists and promote gross motor development for all children in the classroom is by incorporating movement activities and exercises into the daily class routine. Gay Rosenberg explained, “PT sessions are usually only 30 minutes, so anything that can be done to reinforce movement skills throughout the day is beneficial. Everyone can benefit from activities that would strengthen them- playing ball, marching at circle time, Simon Says... You

don't need expensive PT equipment for this" (Gay Rosenberg, personal communication, August 1, 2018). There are many ways that teachers can make movement a fun, exciting part of the day for children, without making any big changes to the routine.

Breaks during circle or meeting times are great opportunities for movement exercises. Many children struggle to remain seated for long periods of time, so movement breaks can provide them with some stimulation to help them focus. Teachers should build a repertoire of developmentally appropriate movement activities that can be performed during these times. PTs will often be the best resources for these activities, because they know what the children in that particular group are working on. Some activities, however, can be helpful for all children, not just for those that receive physical therapy services. Teachers can find many resources online and in print that include fun ideas for incorporating movement into the classroom routine.

One such resource, a *Tool Chest for Teachers, Parents, and Students* (Henry, 2001) offers illustrated examples of movement activities that help children self-regulate while strengthening key muscle groups. The activities in this resource can be especially helpful to include in classrooms in which children are also working on sensory integration and self-regulation goals. When teaching children these exercises teachers should give verbal instructions, and if possible, model the activity themselves. Teachers should figure out which exercises work for best their classroom. Never push the child into doing an activity that she does not want to do, and if there is ever any indication that the exercise does not fit the child's need at that time, do not continue, and seek help from a physical therapist before doing it again (Henry, 2001). Examples of exercises to use for movement breaks, drawn from Henry's (2001) *Tool Chest for Teachers, Parents, and Students*, include:

- “The Fragile Egg” (Henry, 2001, p. 3): this helps children work on the muscles that help them curl up, while also providing a calming, rocking, effect. Children need enough space around them to safely rock back and forth. Children begin by sitting with their knees bent and feet flat on the floor, they place their arms and hands under the knees, tuck the chin into the chest and slowly roll onto the back. Then they rock back and forth in this curled up position with the feet off the ground.
- “The Airplane” (Henry, 2001, p. 5): this helps tone the child’s neck and back muscles. Children need enough room to stretch while lying on the floor. They lie on their stomachs with their legs straight and together, and arms stretched out at the shoulders and bent 90 degrees at elbows, with hands pointing forward. Their legs should be straight, and they should look ahead without arching their necks.

Holding yoga poses is another way to include strengthening activities in the daily routine, such as before, after, or during meeting times. Jim Harrison, a pediatric physical therapist who practices in New York City, often uses visuals in his work with children. When encouraging children to hold a yoga pose, it can be helpful for them to see an illustration of the pose, in addition to hearing verbal instructions (Harrison, personal communication, August 1, 2018). Harrison often uses *Babar’s Yoga for Elephants* by Laurent De Brunhoff (2002) when working on specific strengthening exercises with children. This book is written and illustrated like a children’s story, following the popular character “Babar the Elephant” and his family as they move through various yoga positions, stretches, and breathing exercises. The exercises are clearly illustrated in a step-by-step way, and accompanied by step-by-step written instructions. The visuals and narration that accompany the exercises can be motivating for some children, particularly for those who enjoy pretend play. This book, and similar books that present yoga and other exercises in a fun, visual context, can be essential tools to promote strength and movement in the early childhood classroom.

Teachers can also add movement to the routine by offering heavy jobs to children

who may need them. Young children are often willing helpers, so giving them jobs can be a motivating way to get them moving. Examples of heavy jobs include carrying a stack of books across the room, moving tables or furniture around using both hands, and helping with sweeping up food after lunch or snacks (Henry, 2001). Teachers might consider compiling a list of heavy jobs to draw from as a part of the everyday routine. Another effective way to incorporate movement into the routine is by choosing the stairs instead of the elevator when moving to different parts of the school building. If not all children in the classroom are able to climb stairs, teachers can take smaller groups of children up the stairs, especially the children that are working on stairs and could use extra practice (Gay Rosenberg personal communication, August 1, 2018).

### **5. Developmentally Appropriate Tasks**

While the activities described above can be helpful for many children in supporting the development of gross motor skills, it is important that teachers take into account where each child is developmentally when structuring and adapting movement activities for specific children. In the Developmental Interaction Approach, learning is based in the teacher's awareness of the child's development, with the assumption that development unfolds at different times and ages for different children. This approach prioritizes meeting children where they are, and on their own terms (Nager & Shapiro, 2000).

Designing developmentally appropriate motor tasks requires a basic understanding of motor theory, and how motor skills typically develop in young children. Pediatric physical therapist Gay Rosenberg is often asked to present her work and knowledge to teachers during professional development meetings. She believes that teachers should know the basics of motor development, so that they understand the importance of

supporting these skills. In addition, teachers with an understanding of motor theory can more effectively plan and create activities that meet children where they are developmentally, in order to support their optimal gross motor development (Gay Rosenberg, personal communication, August 1, 2018).

Gagen and Getchell (2006) highlight the importance of making sure that the choice of movement task, equipment, and the environment interact to provide developmentally appropriate movement experiences for young children. They write, “When fun and stimulating activities are provided that challenge children at their developmental level of competence, children will participate with enthusiasm” (p. 228). When designing these activities, teachers should consider “constraints.” Gagen and Getchell (2006) describe these as “characteristics of the individual, the learning environment and the task that influence the production and development of movement” (p. 230). Examples of constraints include individual factors such as the child’s height and strength, an element of the environment like the temperature or surface material of the floor, and the task that the child is working on, such as going up stairs, or kicking a ball. All of these constraints, and the ways in which they interact, need to be considered in order to understand how best to meet the needs of any particular child. In order to teach movement skills in a developmentally appropriate way, “You must consider each individual child (with his or her own particular morphological characteristics) within an environment (both physical and social) performing a dynamic task (with specific goals, rules, and equipment)” (Gagen & Getchell, 2006, p. 229). These interacting factors create a unique context in which movements emerge. We therefore can’t assume that movement activities are ‘one size fits all’ for all students, or even for the same student at any given time.



Teachers can design developmentally appropriate tasks for children by thinking intentionally about goals, equipment, and the environment. For example, when considering which ball to use with a child who is working on throwing, it is helpful to know that the size of the ball really matters. Indeed, for the child to throw the ball in a functional way, the ball must fit into the child's hands in a way that the child can grip with her fingers. If a ball is too large, the child will be unable to throw it properly, and this can inhibit the optimal development of the skill for that particular child. In addition, the ball's weight should be heavy enough to fly, but light enough that the child will be able to lift and throw it (Gagen & Getchell, 2006). Teachers should design movement activities with the child's goal in mind, as well as considering his size, strength, and capability. Of course, in an inclusive classroom these factors will vary greatly between children. Flexible tasks can be designed for the group as a whole, and then modified for individual children that are working on specific motor skills.

For instance, locomotor movement activities, such as jumping, skipping, or moving freestyle, are often motivating and appropriate in early childhood classrooms. These can be done to music or to a rhythm, like clapping or a drumbeat. However, locomotor skills do not emerge at the same time for all children, and inclusive early childhood classrooms will often have children with a wide range of locomotor skills and abilities: some children may be able to perform most of the movements, while others will not. Gagen and Getchell (2006) explain,

“While many children usually begin to attempt two-foot jumping around two years of age, it is not unusual to have children even entering kindergarten who cannot get both feet off the ground at the same time due to strength and balance constraints. Activities like jumping rope depend on the prior development of two-foot jumping so tasks should be adjusted to accommodate those children with developmental lags in strength, balance or coordination” (p. 232).

Therefore, if teachers have a basic understanding of motor theory, and of the skills necessary to perform certain activities, they can be more efficient in developing activities and adaptations that are developmentally appropriate for each child.

## **6. Knowing the Child's Disposition and Temperament**

When working with children with physical disabilities or motor delays, it is essential to know the whole child. Teachers should have an understanding of each child's disposition, temperament, and biological rhythms in order to create successful learning opportunities for individual children. In considering motor development, there are certain factors that will deeply affect the child's ability to learn, and the way in which a child functions and performs motor tasks. Consider the child's general energy patterns. During what time of day does a child function optimally? For example, some children are tired in the mornings, and as a result will not be as receptive to learning and practicing gross motor skills at that time of day.

Winders (1997) created a guide to developing gross motor skills in children with Down Syndrome. While this guide is geared towards working with children with Down Syndrome, the strategies offered can apply to all children with disabilities or developmental delays in gross motor functioning, and perhaps to even a more typically developing population too. Winders (1997) emphasizes quality over quantity of time working on specific gross motor skills. It is essential to choose the right time of day, when children are active and ready to move, to present a new challenge. When the child is tired or unmotivated, Winders (1997) suggests choosing easier positions and activities to practice. Overall, teachers should know each child's disposition and learn to read his cues, in order to understand when to keep going with an activity, and when to stop.

Children have different ways of signaling tiredness and pain, so teachers should be aware of each child's cues (Winders, 1997). They can do this by consulting with caregivers and therapists, and by observing children in the classroom at various times of day.

In addition, teachers should get to know each child's temperament in her approach to gross motor skills. Temperament, in this context, can be viewed as the child's manner of thinking, behaving, and reacting (Winders, 1997). As an example, Winders (1997) describes two profiles that she has observed in children with Down Syndrome: motor driven children, and observer children. She describes motor driven children as children who love to move, spend limited time in one position, take risks, move fast, and initially resist stationary positions like standing or sitting. On the other hand, children who are observers prefer to stay in one position, need a reason to move, are cautious and easily frightened by new positions, love to be held, and move at a slower rate to maintain control and feel balanced. When structuring gross motor activities for children, consider the child's temperament, and what she is motivated to do. Physical therapists often save the activities that children prefer for last, and begin with those that they are more likely to resist (Winders, 1997; Gay Rosenberg, personal communication, August 1, 2018).

Sekerak et al. (2003) also view the child's characteristics as an integral part of integrating physical therapy in early childhood classrooms. For teachers and therapists to know when and how to intervene, it is essential that they observe the child's functional needs in the classroom. The child's attention, emotional needs, and personality will play parts in determine his functional needs, so an understanding of the child's affective characteristics is helpful in determining how to best support a child's functional movement development in the classroom environment. In addition, Teachers should

always communicate what they know about children to therapists, because they will often have a better understanding of how the child functions in a natural environment, and this can assist the therapist in developing goals and strategies for that child. Sekerak et al. (2003) suggest that teachers share information about the child's general biological schedule with therapists, in order to help them find the optimal time to provide therapy. Pediatric physical therapist Gay Rosenberg tries to design her therapy schedule around children's optimal states of alertness. Whenever possible, she prefers to start the day with the children that tend to come in with energy in the morning, and will work with the children that are slower to wake up later in the day (personal communication, August 1, 2018). Teachers can help PTs figure out when to see children by gathering and sharing knowledge of how children function throughout the day.

Another important factor for teachers to consider and support in the classroom is a child's desire for independence. When a child with physical limitations is motivated to be independent, it is important for teachers to know how much support the child really requires, and respect that child's desire for independent movement. Teachers can support a child's self esteem by showing respect and understanding for that child's independence, and by not interfering or imposing too much on that child's attempts to move. Rather, teachers can encourage the child to take the time he needs to move his body in the classroom (Recchia, 2013).

## **7. Knowing the Child's Interests and Motivators**

When physical therapists work with young children they are always in search of ways to motivate them. Teachers should also be aware of what motivates children when structuring opportunities for them to practice motor skills in the classroom. When

working with children with Down Syndrome, Winders (1997) suggests providing strategically targeted supports to give children the opportunity to do what they already want to do, but cannot, due to physical obstacles. This can apply to all children who face obstacles to moving and exploring due to their physical problems. One way in which we can support children to overcome these obstacles is by providing motivators, such as a favorite toy. Winders (1997) writes, “When practicing motor skills your child’s success and enjoyment will be dependent on how you play, what type of toys you use, and where you place them” (p. xi). Therefore, physical therapists, as well as teachers, need to know what the child is interested in, and how to use those interests skillfully to achieve the child’s motor goals.

A knowledge of the child’s temperament, combined with an understanding of what motivates her, will allow teachers to structure activities that are more likely to be effective in supporting gross motor development. For example, a child who enjoys bubbles, and tends to be more of an “observer” in temperament, might be motivated to move if the activity involves popping bubbles. Based on what the child is working on, the teacher can structure the activity in different ways. For example, if this child is working on crossing the midline, you might blow bubbles on the child’s left side and instruct the child to pop the bubbles using only her right hand. If the child is working on balance, see if she can pop the bubbles while standing on a balance board, or on one leg (Gay Rosenberg, personal communication, October 15, 2018).

Teachers can also use a child’s interests in play when structuring an environment that will be conducive to motor development. As Recchia (2013) suggests, “Teachers need to plan activities based on the children’s motivation and interests, building on their

knowledge of how each child actively engages in classroom experiences and what each child is likely to gain from the activity” (p. 73). For example, if a teacher knows that a child is working on building stamina while standing up, she might intentionally place that child’s preferred activity in a location that requires the child to stand while engaging in the activity, such as at an easel or in a sensory table.

### **8. Peer Modeling and Social Experiences**

In an inclusive setting, children with disabilities learn and develop alongside their typically developing peers (Recchia, 2013). These peers can play an important role in modeling desired skills for children with physical disabilities. There are many benefits of involving peers in therapeutic activities, and creating a social environment that supports the physical needs of children with disabilities in the classroom.

Peers can provide motivation for children with physical delays or disabilities, mainly because children are drawn to what they see other children doing. According to Sekerak et al. (2003), “typically developing kids help to create an environment that is developmentally stimulating for all children in the classroom” (p. 98). Physical therapists sometimes include one or more typically developing peer(s) in their sessions with children as a way to create a natural learning environment, and a social experience for the children receiving therapy (Gay Rosenberg, personal communication, August 1, 2018). Sekerak et al. (2003) suggest working on motor skills in small groups of children, because larger groups are more distracting. In the classroom, structuring movement activities in smaller groups that include children with physical disabilities and typically developing peers can further support the work of PTs by providing group play opportunities, modeling desired skills and providing peer motivation. Involving peers in

therapy also benefits typically developing children because it fosters social relationships and allows them to experience and practice different ways of moving (Sekerak et al., 2003).

Teachers can also structure movement activities for all children in the classroom around the functional needs of children with disabilities. For example, if a child in the classroom is crawling, teachers could come up with activities where everyone crawls. In this way, crawling becomes something that everyone does together, so the child with physical disabilities can perform the task while sharing an experience with her peers (Recchia, 2013). Teachers might also set up obstacle courses in the room and encourage children to navigate them in their own preferred ways. Creating adaptations that give children with physical disabilities opportunities to participate alongside peers can require flexible thinking and creativity. Recchia (2013) notes, “There are many ways to make movement experience a more integrated thread within the classroom, rather than just a separate activity [...] that’s not really connected to anything else” (p. 28). One teacher structured an activity in which she encouraged typically developing peers to move alongside a child in a wheelchair by scooting themselves around in their regular chairs. She found that children enjoyed doing this, and interacted with each other, and with the child in the wheelchair, along the way (Recchia, 2013). In this example, the child’s movement experience also becomes a social one, and it provides other children in the classroom with an opportunity to strengthen their own bodies.

## **9. Addressing Barriers to Participation**

In adults and children, regular physical activity is associated with disease prevention, and is essential for promoting emotional and physical well-being. Exercise also has

positive effects on self-esteem, and self-confidence (Benjamin, 2010). Children with physical disabilities are less likely to participate in physical exercise than children without disabilities, and this can put them at increased risk for disease and conditions that are associated with a sedentary lifestyle (Fragala-Pinkham et al., 2005).

When developing inclusive curriculum for a range of physical abilities, teachers should be aware of their own attitudinal barriers that may prevent some children from fully participating in physical activities. Murphy, Carbone, and the Council of Children with Disabilities (2008) believe that many people overestimate the risks and overlook the value of physical education for children with disabilities. As a result, children with disabilities are more susceptible to low performance expectations and limited opportunities for participation in group physical activities. Fear of injury is also a common barrier to participation. In order to overcome these attitudinal barriers, and provide safe, and developmentally appropriate opportunities for children with disabilities to participate in physical activities, teachers first need to understand the importance of physical activity for children with disabilities. Then, in collaboration with the child's family, physical therapist, and pediatrician, teachers can develop strategies to reduce the risk of illness and injury through adaptations and safety precautions. Murphy et al. (2008) advise us to "recognize and reduce child, family, and societal barriers to the participation of children with disabilities in athletics" (p. 1060). While safety is of primary concern in preschool settings, early childhood educators should work with families and other professionals to find ways to safely include children with disabilities in physical activities. It is the educator's responsibility to put aside assumptions, and make informed decisions regarding each child's participation in physical activity, and to consider the



child's overall health, individual preferences, safety precautions, and availability of appropriate space and equipment when making these decisions.

### **Curriculum Approaches**

Through intentional and meaningful adjustments to the environment, curriculum, and relationships with children, early childhood educators can extend the work of physical therapists and support the needs of young learners with physical disabilities and gross motor delays. However, the strategies described in this section can be beneficial to all young children. Early childhood is an optimal time to teach Fundamental Motor Skills (FMS), which are building blocks to more advanced movement skills and sports skills. These skills emerge within a dynamic system involving the child, the environment, and the tasks that the child is given (Goodway & Branta, 2003). A study by Goodway and Branta (2003) found that disadvantaged preschoolers, who are often exposed to environmental and biological risk factors that affect the development of FMS, can benefit from a developmentally appropriate motor skill intervention. Therefore, when early childhood educators incorporate developmentally appropriate movement activities in the curriculum, they are not only supporting children with physical disabilities and gross motor delays, but also helping to mediate the risks of children that may be more susceptible motor delays, such as preschoolers from low-income and minority populations.

Furthermore, the Universal Design for Learning (UDL) approach emphasizes access to learning for all students, including those with physical disabilities and gross motor delays, and involves flexibility, simplicity, perceptibility, and efficiency in the multiple ways information is presented, and expressed. In fact, the concepts behind UDL

arose as a result of issues with physical accessibility in school buildings. When the Americans with Disabilities Act (ADA) was passed in the 1990s, schools began to build ramps and other architectural features to create spaces that were physically accessible. However, it became clear that adding these accommodations were expensive, and it would be more efficient to design buildings that were accessible from the start. The architectural idea of universal design influenced discussions of accessibility in other areas besides physical space, which is eventually how researchers at the Center for Applied Special Technologies (CAST) developed what we know now as UDL (Ralabate, 2011).

While UDL extends beyond physically accessible spaces, physical therapists are often involved in the design of activities, assessments, and materials that aim to meet the needs of children with a wide variety of physical backgrounds and gross motor abilities. One of the principles of UDL is to “provide options for physical action” (CAST, 2018). PTs can assist teachers in creating a physical environment that facilitates movement for all students. For example, they might suggest using highlighting tape to mark clear passages around the room, or to outline the edges of steps if there are any stairs in the classroom (PT Jim Harrison, personal communication, August 1, 2018). In order to ensure that all students can interact with classroom materials and participate in learning, it is essential to provide assistive technologies through which children with physical disabilities and movement impairments can express themselves (CAST, 2018). PTs can provide resources and information in regards to common assistive technologies that can reduce barriers for children with movement delays and disorders- such as single switches, voice activated switches, and joysticks. UDL therefore offers ways for all students to access learning and play in the classroom, regardless of their physical abilities.

## References

- American Occupational Therapy Association. (2015). *Occupational therapy and universal design for learning*. Retrieved November 2017, from [https://www.aota.org/~media/Corporate/Files/AboutOT/Professionals/WhatIsOT/CY/Fact-Sheets/UDL%20fact%20sheet.pdf](https://www.aota.org/~/media/Corporate/Files/AboutOT/Professionals/WhatIsOT/CY/Fact-Sheets/UDL%20fact%20sheet.pdf)
- American Physical Therapy Association (2007). *Assistive technology and the individualized education program*. Retrieved December 2018, from <https://pediatricapta.org/includes/fact-sheets/pdfs/AssistiveTechnology.pdf>
- American Physical Therapy Association (2009). *Foundations of pediatric orthotics*. Retrieved December 2018, from <https://pediatricapta.org/includes/fact-sheets/pdfs/Orthotics.pdf>
- American Speech-Language-Hearing Association. (2000). *Early identification of speech-language delays and disorder*. Retrieved October 2018, from [http://www.ldonline.org/article/Early\\_Identification\\_of\\_Speech-Language\\_Delays\\_and\\_Disorders?theme=print](http://www.ldonline.org/article/Early_Identification_of_Speech-Language_Delays_and_Disorders?theme=print)
- American Speech-Language-Hearing Association. (2018). *Universal design for learning*. Retrieved October 2018, from <https://www.asha.org/SLP/schools/Universal-Design-for-Learning/>
- Aldrich, J. E., & Shelly, T. (2006). See me! hear me! touch me! move me!. *Intervention In School & Clinic*, 42(1), 54-55.
- Barnett, J. E., & O'Shaughnessy, K. (2015). Enhancing collaboration between occupational therapists and early childhood educators working with children on the autism spectrum. *Early Childhood Education Journal*, 43(6), 467-472.
- Benjamin R. M. (2010). The Surgeon General's vision for a healthy and fit nation. *Public health reports (Washington, D.C.: 1974)*, 125(4), 514-5.
- Bunning, K. (2004) *Speech and language therapy intervention frameworks and processes*. London: Whurr Publishers Ltd.
- Campbell, A. L., & Namy, L. L. (2003). The role of social referential context and verbal and nonverbal symbol learning. *Child Development*, 74, 549-563.
- CAST (2018). *Universal design for learning guidelines version 2.2*. Retrieved December 2018, from <http://udlguidelines.cast.org>
- Colina, D. & Portney, J. (2017). Personal Communication. Bank Street College of Education.

- Crenshaw (2015). *Speech-language therapy*. Retrieved October 2018, from <https://kidshealth.org/en/parents/speech-therapy.html>
- De Brunhoff, L. (2002). *Babar's yoga for elephants*. New York: Harry N. Abrams, Inc.
- Doctoroff, S. (2001). Adapting the physical environment to meet the needs of all young children for play. *Early Childhood Education Journal*, 29(2), 105–109.
- Goodway, J. D., & Branta, C. F. (2003). Influence of a motor skill intervention on fundamental motor skill development of disadvantaged preschool children. *Research Quarterly for Exercise & Sport*, 74(1), 36–46.
- Groß, W., Linden, U., & Ostermann, T. (2010). Effects of music therapy in the treatment of children with delayed speech development - results of a pilot study. *BMC Complementary and Alternative Medicine*, 10, 39.
- Harrison, J. (2018). Personal communication. Bank Street College of Education.
- Harron, W. (2014). *Occupational therapy*. The Nemours Foundation/KidsHealth. Retrieved November 2017, from <http://kidshealth.org/en/parents/occupational-therapy.html?ref=search&WT.ac=msh-p-dtop-en-search-clk#>
- Henry, D. (2001). *Tool chest for teachers, parents, & students*. Phoenix, Ariz.: Henry Occupational Therapy Services, Inc.
- Horwath, S. (2017). *The importance of pediatric physical therapy*. PT Solutions Physical Therapy. Retrieved December 2018, from <https://ptsolutions.com/the-importance-of-pediatric-physical-therapy/>
- Integrated Learning Strategies (2016). *Music therapy: Non-verbal children with speech and language delay*. Retrieved April 2017, from: <http://ilslearningcorner.com/2016-03-music-therapy-study-says-music-key-for-non-verbal-children-and-children-with-speech-and-language-delays/>
- Kranowitz, C. S. (1998). *The out-of-sync child: Recognizing and coping with sensory dysfunction*. New York: The Berkley Publishing Group.
- Learning Disabilities Association of America (1999). *Nurturing oral language skills*. Retrieved April 2017, from <http://www.ldonline.org/article/6314>
- Learning Disabilities Association of America (1999). *Speech and language development milestones chart for parents and teachers*. Retrieved April 2017, from <http://www.ldonline.org/article/6313>
- Levine, M. (2001). *Educational care*. (2nd ed.) Cambridge, MA: Educators Publishing Service.

- Luborsky, B. (2017). Helping children with attentional challenges in a montessori classroom: The role of the occupational therapist. *NAMTA Journal*, 42(2), 287-352.
- McWilliam, R. A., & Bailey, D. B. (1994). Predictors of service-delivery models in center-based early intervention. *Exceptional Children*, 61(1), 56–71.
- McWilliam, R.A. (1995). Integration of therapy and consultative special education: A continuum in early intervention. *Infants and Young Children*, 7(4), 29-38.
- Miller, D. (2007). A “rich diet” for learning: A multi-sensory approach that nourishes all children. *Exchange*, pp. 48-54.
- Murphy, N., Carbone, P., & The Council on Children with Disabilities. (2008). Promoting the participation of children with disabilities in sports, recreation, and physical activities. *Pediatrics*, 121(5), 1057–1061.
- Nager, N., & Shapiro, E. K. (2000). *Revisiting a progressive pedagogy: the developmental-interaction approach*. Albany: State University of New York Press, c2000.
- Newman, J., & Kranowitz, C. (2012). Growing in-sync children. *Teaching Young Children*, 6(1), 7-10.
- Pickstone, C., Goldbart, J., Marshall, J., Rees, A., & Roulstone, S. (2009). A systematic review of environmental interventions to improve child language outcomes for children with or at risk of primary language impairment. *Journal Of Research In Special Educational Needs*, 9(2), 66-79.
- Polmanteer, K. N., & Turbiville, V. P. (2000). Family-responsive individualized family service plans for speech-language pathologists. *Language, Speech & Hearing Services In Schools*, 31(1), 4-14.
- Ralabate, P. K. (2011). Universal design for learning: meeting the needs of all students. *The ASHA Leader*, 16(10), 14-17.
- Recchia, S. (2013). *Inclusion in the early childhood classroom: What makes a difference*. New York: Teachers College Press.
- Rosenberg, G. (2018). Personal communication. Bank Street College of Education.
- Robertson, S. (2004). *Proceedings from ASHA convention '07: The effects of sign on the oral vocabulary of two late talking toddlers*. Indiana, PA.
- Rodger, S., & Ziviani, J. (2006). *Occupational therapy with children: understanding children's occupations and enabling participation*. Oxford; Malden, MA: Blackwell Pub., 2006.

- Saunders, D. (2005). *The importance of sensory processing*. Retrieved November 2017, from <http://dsaundersot.webs.com/The%20Importance%20of%20Sensory%20Processing.pdf>
- Schaaf, R. C., & Miller, L. J. (2005). Occupational therapy using a sensory integrative approach for children with developmental disabilities. *Mental Retardation & Developmental Disabilities Research Reviews*, 11(2), 143-148.
- Sekerak, D. M., Kirkpatrick, D. B., Nelson, K. C., & Propes, J. H. (2003). Physical therapy in preschool classrooms: successful integration of therapy into classroom routines. *Pediatric Physical Therapy: The Official Publication Of The Section On Pediatrics Of The American Physical Therapy Association*, 15(2), 93-104.
- Special Learning Inc. (2018). *What are social stories?* Retrieved December 2018, from <https://www.special-learning.com/article/what-are-social-stories>
- Speech and Language Kids (2016). *What is language therapy?* Retrieved October 2018, from <https://www.speechandlanguagekids.com/what-is-language-therapy/>
- Vygotsky, L. S. (1962). *Thought and language*. Cambridge MA: MIT Press.
- Wilner, J. (2017). Personal Communication. Bank Street College of Education.
- Winders, P. (1997). *Gross motor skills in children with down syndrome*. Bethesda, Md.: Woodbine House.
- Wong Fillmore, L. & Snow, C. E. (2000). What teachers need to know about language (Contract No. ED-99-CO-0008). U.S. Department of Education's Office of Educational Research and Improvement, Center for Applied Linguistics.
- Zero to Three (2003). *What we know about early literacy and language development*. Retrieved April 2017, from <https://www.zerotothree.org/resources/300-what-we-know-about-early-literacy-and-language-development>