

IMPROVED LANGUAGE, MOVEMENT AND SELF-REGULATION THROUGH USE OF MELODY'S METHOD

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Introduction

The purpose of this paper is to introduce a musically based intervention for young children with disabilities, ages 2-5, developed at the Melody Arons Center in Teaneck, New Jersey. It was developed from an abiding interest in the healing powers of music, as well as a career in teaching children with disabilities. The target population includes children with borderline to above average intelligence with language, moderate movement disorders and secondary behavior problems.

Melody's Method was tested on ten children with disabilities from 2001-2011 whose primary problems were expressive language and sensory integration. Referrals were made by neurologists and various clinicians. Results ranged from slight to dramatic improvement in all cases with children unresponsive to other interventions. Their written case studies are now being completed. Meanwhile, educating special education children is increasingly problematic with declining school budgets and an unmet need for quality early intervention programs. The outcome of this research over a ten year period suggests a strong and affordable potential to improve early functioning in children with specific developmental delays. As a result, this introductory paper is written.

Literature Review

Music therapy dates back to Aristotle and Plato as a generic category of therapy. Today's music therapists assess individual need and design specific music sessions to improve or rehabilitate a target area of disability through music improvisation, listening, song writing, imagery and performance. It is defined as:

The prescribed use of music by a qualified person to effect positive changes in the psychological, physical, cognitive, or social functioning of individuals with health or educational problems (American Music Therapy Association 1999).

It can be a diagnostic tool to identify problem areas including developmental delays, emotional issues, family interaction, pain management, and decreased environmental awareness in both verbal and nonverbal people. Types of music therapy include:

1. The Interactive Metronome, IM

The Interactive Metronome (IM) is a rhythm based treatment for a wide variety of clinical disorders. The concept of mental time-keeping across large groups of clinical disciplines supports its importance in human behavior. There is clear evidence for some kind of brain timing, or temporal processing, the keeping of a beat increasing speed of

information processing (McGrew, 2009). IM uses a patented auditory guidance system and the experience of movement to improve basic skills needed for learning, development, motor planning, and sequencing. Through repetition and interactive exercises done in 12-15 one hour sessions, it is said to develop and sustain focus and attention for longer periods of time, increase physical endurance, concentration, coordinated motor control, regulation of frustration and anger, as well as rhythm and timing. It helps recall of information, language processing, reading, math fluency and executive functioning by improving processing speed because it integrates processing between the hemispheres of the brain.

2. Melodic Intonation Therapy, MIT

Melodic Intonation Therapy uses melodic and rhythmic components to improve speech recovery for patients with aphasia. Beginning in the 1970s, it is still considered to be an experimental therapy that uses elements of melody and rhythm in the production of speech. In early treatment, patients are encouraged to sing words rather than speak them. It is noted that there is little research to support success and the theory that MIT stimulates activity in the right hemisphere and assists in speech production. Common words and phrases are converted into melodic phrases that mimic speech intonation and rhythmic patterns.

3. Neurologic Music Therapy, NMT

Neurologic Music Therapy, NMT, uses music to address specific aspects of an individual's neurological disease or disorder. Its techniques are research based, standardized, and adaptable to individual needs through use of neuroscience models, theorizing the influence of music on functional changes in the brain and behavior. Advanced training is required to use NMT to address cognition, speech and language, and sensorimotor needs.

4. Dance and Movement Therapy

Dance therapy is defined by the American Dance Therapy Association as “the psychotherapeutic use of movement as a process which furthers the emotional, cognitive and physical integration of the individual”. Dance therapists have rigorous training, licensing requirements, and a code of ethics. It is based upon the premise that body, mind and spirit are interconnected, mobilizing internal resources from that place where mind and body are one. Dance is a fundamental form of human expression, one area of the brain housing a representation of the body's orientation and helping to direct its movements through space. Another part acts like a sort of synchronizer, helping to pace our actions to music. Instinct for dance, the process that causes us to unconsciously tap our feet to a beat, bypasses higher auditory areas of the brain so that subcortical regions communicate with each other in nonverbal activity. (Pratt, 2004)

Children under the age of 8

It has long been known that children under the age of 8 do not integrate information from their senses. Research suggests that perceptual systems of developing children might require constant recalibration by using one sense to fine-tune another. This might also reflect limitations of a still developing brain. Prior to the age of 8, integration of visual and touch-delivered information is far from optimal, either vision or touch dominating. Adult functioning was best explained by sensory integration, while children's behavior suggested that they did not integrate different kinds of spatial information (Genova, 2008).

Melody's Method, Theoretical Foundations

Melody's Method is derived from fundamental agreement about human development from ages 0-5, based upon sensory motor movement, experience, and social connectedness (Shonkoff & Phillips, 2000). Language is the second developmental stage as the body gains independence and coordination. For children with disabilities, the way the body internalizes and understands sensations, combined with the pressure of gravity upon it, can have a profoundly negative effect on every aspect of their lives (Greenspan, 1998). Music is the consummate sensory tool with vibrations, sounds, volume, visual and spatial experiences, movement, melody, and above all, a beat. This beat aides in understanding and speaking words due to emphasis on stressed syllables within word(s), phrases and sentences. Connections between music and linguistic rhythm, combined with sensory connections to improve language input and output through individualized programming (Loewy, 2004) provides half of the theoretical basis for Melody's Method.

The other half is premised upon right and left hemisphere brain functioning. Simply put, the right side of the brain is nonverbal, intuitive and creative, grasping the entirety of an idea in a holistic way. The left side is made for analytical language. Melody's method "loads" the right hemisphere with traditional children's songs in a holistic package of song and individually selected sensory motor activities. As body systems and language become coordinated through rhythmic activities, gradual introduction of verbal analysis occurs. Questions of who, what, when, where, why are asked about the song lyrics they have memorized. A gradient theory is hypothesized between the hemispheres by converting holistic information (right hemisphere) into analytical, verbal categories (left hemisphere). This hypothesis is based upon the existence of a large number of nerve fibers, the corpus callosum, that connect the right and left hemisphere and is responsible for most of the communication between the two. Once the right hemisphere has been "loaded" with memorized songs in conjunction with motor memory, lyrics are gradually "rolled over" the gradient to the left hemisphere by asking specific questions. For example, in Mary Had a Little Lamb, the teacher asks, "Who had a lamb?" In Twinkle, Twinkle Little Star, a question is, "What twinkled in the sky?" It is theorized that these songs are held in right hemisphere memory as holistic units. Subsequent questions require the child to listen and think differently to his/her singing in order to find the answer. This is interpreted to mean that information crosses from the nonverbal to the

verbal hemisphere, thus creating the ability to analyze language into categories and build skills needed for school and later life.

Definition of Terms

Sensory Integration- This theory is based on senses normally below the level of our awareness. Input to sensory systems learns about the environment, synthesizing such information to make proper responses to stimuli. There are seven different sensory systems: visual, auditory, smell, taste, and touch. Balance and movement are controlled by the inner ear, while body position in space is controlled by muscles and joints.

Vestibular system- This is housed in the cochlea of the ear and detects motion, gravity, and provides our sense of balance. It has many connections with the rest of the brain, influencing muscle tone, and fine, gross and oral motor coordination. It supports the ability of the body to use both sides in a coordinated way with many connections involving auditory processing and language.

Proprioception- This system gives us information about the position of our body parts, muscles, tendons, ligaments, joints, and equilibrium.

Scaffolding- This is an instructional method that gives a support structure to the child in order for him/her to accomplish a task slightly beyond current ability. As the child is able to perform the task, the support system is gradually withdrawn.

Consolidation- This is the process of having information in short term memory placed into long term memory storage through spaced repetition.

Self-regulation- This term refers to the child's ability to alter behaviors in accordance to either internal or society's expectations. It requires the child to adapt to the situation and be flexible, inhibiting impulses to do what is right rather than what they want to do.

Low tone- Also called hypotonia, this occurs when muscles resist movement and feel soft and doughy, flopping like a rag doll. Symptoms include shallow breathing, feeding problems, failure to develop motor related milestones, delayed speech, and lethargy.

Melody's Method Goals

1. Improve receptive language
2. Improve expressive language
3. Improve memory
4. Improve motor planning
5. Improve affect
6. Improve self-regulation
7. Improve bonding and attachment

History & Overview

Melody's Method results from a shared observation. Young preschool children learn the alphabet song, starting between ages two and three. By age 4, they are asked to say the

alphabet without the song (Allott, 2000; 2005). Most cannot, unable to separate the music from the words and letters. Examination of that song, in addition to the large repertoire of traditional children's songs in America, reveals similar critical elements. There is a strong rhythmic pattern of either two or three beats per measure. Phrases are short and end in rhymed couplets. Contours of the melodies are within the interval of a fifth, ranging from middle C to an octave above, the range of the child's speaking voice. Example:

The Alphabet Song

(Note: The highlighted letter is the stressed syllable of the lyric.)

A, B, C, D,
E, F, **G**.

H, I, J, K.
L, M, N, O, **P**.

Q, R, S,
T, U, V.

W, X,
Y, and Z.

Now I know my A, B, C.
Next time won't you **sing** with **me**?

Stressed syllables are on G and P. Each gets two beats and is a rhymed couplet, as are V and Z, and C and me. Rhymed couplets reinforce the accented two count beats of the line at G and P. When children sing this song, there is one spot they do not forget. It is L, M, N, O, P, the rhythmic doubling of rhythm that is different from the rest of the song. Its novelty within the strong duple meter structure appears to hook it into memory. When children try to say the words after learning the song musically, they neither carry over the rhythmic phrasing nor the stressed syllables. That is the holistic structure needed for recall. Similarly, short television jingles, theme songs, or commercials are rhythmic, heard holistically, and remembered by very young children. Matching of language and melody within a steady beat is a shared cultural experience. Apart from cost, it is the reason that traditional children's songs are used in this methodology..

The Play-Based Student/Teacher Relationship

You cannot make a two or three year old do what they do not want to do, particularly if the task is difficult. They say "No", walk away, ignore you, or throw a temper tantrum. Therefore, it is important to understand the nature of a play-based relationship, what it is and what it is not (Linder, 2000). Learning is meant to be fun. Though axiomatic, play is the way children learn at their own rate and in their own way. Play integrates all skills, using small and large muscles, language, creativity, eye contact, social skills and emotional expression (Downey, J., Garzoli, E., 2007). It does not mean that children do what they want all of the time. Though they lead the play, they participate in teacher-directed tasks, learn to follow rules, and choose activities of interest in free time.

Melody's Method agrees that the environment functions as a third teacher, its contents continuously supporting the child's interests and improvement of deficits (Darrogh, 2006). Choices are determined by the teacher with limits based on safety, developmental age, and temperament. Children are encouraged to express ideas in order to better understand their world.

The teacher guides and initiates certain activities but never dominates. Watching the child's play, body coordination, verbal or nonverbal language and length of attention span is both an educational and diagnostic imperative. Strengths and interests of the child are woven into individualized, teacher directed activities designed to improve specific areas of deficit. The teacher also functions as a play mate by turn taking, saying/modeling "Please", "Thank you", and "Can I", either verbally or with gesture. Materials are gradually added to extend the play, selected for therapeutic or educational value. Boundaries are established for both teacher and child so that neither is forced to do an activity. It is the teacher's duty to figure out how to get the job done within the child's comfort zone. He/she can stop an activity by saying "All done" and that is honored by the teacher. Similarly, the child learns to respect the teacher's use of "No" and "Try this". The child must feel safe, loved, and respected at all times and under all conditions.

Improving Receptive Language

Receptive language develops before expressive language and refers to language comprehension skills. A common marker for concern is the inability to follow directions. Young children with disabilities often have auditory processing problems, perceiving human speech as a continuous flow of sound without stressed syllables to delineate beginning, middle, or end. Many such children experience sensory integration problems which may impact on how they process sound. Their understanding of the world is confused, the child not feeling comfortable or safe in his/her own skin. Whether the problems are receptive language alone or in combination with sensory issues, Melody's Method helps to organize the sounds into meaning. Tapping beats to music or rhyme, dancing to one and two step directions given rhythmically, or doing finger plays with listening combines a motor and auditory stimulus as a way to understand and visualize speech. Rhythmic activities paired with receptive language should be done on many surfaces and textures with as many parts of the body as possible to connect language with sensory integration. For example, making rhythms in water, on sand, on bubble wrap, on any surface simultaneous with auditory input are components of Melody's Method.

Putting the ear in an upside down position in Melody's Method has shown enormous benefits to children with receptive language and sensory integration problems. The gravity point in the cochlea is changed in this position with improved blood flow, similar to a headstand in yoga. Done on a limited basis to songs and dances, this inverted head position lifts the child off the floor upside-down, plays wheelbarrow, hangs them by their ankles, or with head down on monkey bars or a swing. The goal is to find a safe, enjoyable activity that briefly inverts the placement of the ear. Words and phrases are spoken to the child in this position. Then, standing upright, they are asked to do what was said to them while inverted. Most respond positively and with improved receptive

language that lasts. Since this is also fun and feels good to them, children commonly ask for more.

Dancing and jumping rhythmically improves receptive language. These are proprioceptive activities, the thud of the feet on the floor helping muscles and joints of the body to communicate more efficiently to a beat (Levitin & Tirovolas, 2009). This motor movement links with accented syllables of words or phrases to organize input into better understood sequences. For children who cannot jump there is “monster walk,” heavy feet walking to a musical or spoken rhythm. These efforts integrate the body’s internal systems and improve motor planning, all of which support receptive language. There are several ways to dance with a young child, such as holding at eye level, spinning, and dancing on top of adult feet. This provides the sensory comfort of pressure while moving to music and feeling the rhythm of the teacher’s or parent’s body next to them while being held. Ultimately, the child is transitioned to the floor and to independent rhythmic movement.

Other factors affect receptive language. Volume, pacing, and distractions occur throughout all natural settings. Interventions must be interesting and short in duration. The teacher must be constantly vigilant to environmental stimuli that limits improved receptive language. Fatigue is another consideration that limits attention. Interventions are always followed by free play so as to balance exertion with relaxation. The observable measurement of successful instructional balance is when the child smiles, laughs, appears happy, and often asks for more.

Improving Expressive Language

Expressive language combines body and brain in a uniquely coordinated way. Body parts involve lungs and air flow through vibrating vocal cords that make sounds. The physical production of speech, or articulation, refers to muscles and structures in the face and mouth to shape sounds from exhaled air. This includes lips, teeth and tongue. Articulation weaknesses often affect understandability and stamina. Other factors include vocal pitch, volume and vocal quality (Critchley & Henson, 1977).

The brain’s power of expressive language retrieves, remembers, and organizes spoken words through coordinated use of the physical structures of the body. When assessing the development of a young child’s language (Garrard, 1991), consider:

1. How many single words are used? What is the grammatical relationship of those words to each other? For example, noun-verb, adjective-noun.
2. How diverse is the vocabulary? Is there a specific area of interest that sparks output more than another?
3. What words are used incorrectly?
4. What sounds can the child imitate and produce spontaneously?
5. When words are not intelligible? Is there a pattern to the speech error?
6. How long is the language phrase, word or sentence?
7. Does the child initiate language?

8. Does the child stay on topic?
9. Does the child have social language as well as content language?

Melody's Method initially works with the body to support spoken language output. Singing requires deep breathing and coordination with articulators in the mouth. Breathing changes from shallow to diaphragmatic by characterizing it as an "upbeat", similar to "Get Ready" (inhale) and "Go" (exhale). This is easier to do lying down, initial work lasting no more than a minute because of potential for dizziness. The jaw must not droop, the mouth in a pucker similar to the shape of a kiss. Sounds are made with an "ah", "oo", or "ee" to strengthen the lip and mouth muscles for improved articulation. Use of exclamatory words in music to explode sound can be a first connection between breath, facial and mouth muscles. Examples include:

Pop! Goes the Weasel
Peek-a-Boo
Hick-o-ry Dickory dock
Pat-a-cake

Rhythmic patterns are made with lips and tongue to create sounds and blow air in a variety of positions while listening and responding to music. Oral-motor skills are strengthened, becoming responsive to what the child wants to say. Gestures and motions combine with sound production, providing simultaneous sensory experience with language output. For example, clapping, stomping, or tapping the chest at the same time sound is made makes output easier for the child. By learning traditional children's songs with actions, remediation occurs because the experience is fun, provides language models for grammatical relationships, and expands vocabulary and length of phrases that are stored in memory for later use.

The use of specific duple and triple meter songs and phrases provides the context for expanded lengths of utterance by the child and an electrical code of pulses common to all senses (McLaughlin, 1970). Two beat songs begin this intervention because humans have two feet and walk in a natural two beat pattern. This walking rhythm reinforces the stressed syllable and beat of the words to the melody. Twinkle, Twinkle Little Star is an example. It has a strong, two beat pattern with alternating stressed syllables which are reinforced with the rhymed couplet.

Twinkle, Twinkle Little Star

Twinkle, twinkle lit-tle star,
How I wonder what you are.
Up above the world so high
Like a diamond in the sky.
Twinkle, twinkle little star
How I wonder what you are.

Each child learns a song in a different way. Articulation errors may occur, but they rarely get the rhythm wrong. Basic two beat phrases are used while dancing, playing, or

anywhere it can be naturally inserted. Gradually, by keeping the beat, articulation and vocabulary come together.

The use of triple meter, or a waltz rhythm, is preferred by some children. It provides an extra syllable for each strongly accented downbeat. The most common example is the Happy Birthday song. The word “Happy” is on an upbeat, the “H” expelling air toward the downbeat of “Birthday”. For example:

Happy Birthday Song

Happy
3
Birthday to
1 2 3
You, Happy
1 2 3
Birthday to
1 2 3
You. Happy
1 2 3
Birthday to
1 2 3
----- Happy
1 2 3
Birthday to
1 2 3
You.
1 2 3

The strong downbeat of each three beat pattern bounces the next two beats off the tongue toward the next downbeat, involving the entire body differently than a duple meter. A recent study showed that people tend to operate in three second bursts, or the duration of a hug (Kessler, 2011). This may reflect that temporal units of life that define perception of the present moment are in three beat units.

As the child increases the number of memorized songs, those rhythms are used to expand vocabulary and length of phrases without song. A common device is use of a bouncing ball simultaneously with saying the phrase. For example: **Boun**-cing-the **ball** is a three beat phrase. A ball is bounced on the first syllable so that the stressed syllable can be felt in the body. Gradually, more three beat phrases are added as the ball bounces back and forth. Example: **Bouncing the Ball** to my **Daddy**. The same occurs in two or four beat patterns. For example, a child may learn Yankee Doodle on a rocking horse. The rocking of the horse, back and forth in duple meter, combines with the lyric and melody to provide a full body experience. The stressed syllables in the lyric match the back and forth rocking on the horse. Problems may occur during the session if there are switches between duple and triple meters. Therefore, consistency of motor and linguistic rhythms is important during initial phases of instruction.

Inflection of the language, or the rise and fall of the sentence contour or phrase, is the last to be addressed instructionally in expressive language. Often it occurs naturally through

modeling. When it does not, a variety of musical games and sounds are used. Imitating the rise and fall of a police siren or fire truck, doing “opera” or “movie star”, and animal imitations are activities that promote inflected language through exaggerated vocal pitches with dramatic flourishes.

Improved Motor Planning

Movement provides joy and happiness from the moment of birth. Motor skills are divided into two major categories: small muscles (fine motor) and large muscles (gross motor) (Wang , 2004). These are divided into six subgroups: body awareness, balance, locomotion, spatial relationships, manipulation, and rhythm and timing. Movement requires an idea of what the child wants to do, a plan of how to sequence and time movements, and performing the action (Dejean, 2010). Many children with disabilities have problems in planning the movement sequence and then carrying it out. As language becomes more complex there are faster movements of tongue, lips, and jaw in coordination with breathing. In addition to sensory integration methods, other specific motor planning activities for the child are utilized to model the actions of others (Rizzolatti & Sinigaglia, 2006).

Each child has a name rhyme in duple meter, written specifically for him/her. This coordinates movement of the feet with language output. Before entering the classroom, the child stamps his/her feet to a strong marching beat while saying the name rhyme. Once the marching pattern with the rhyme is completed, the door opens and the child marches into the room. For example:

**Lucas is my name,
And music is my game!**

**Jack! Jack! My name is Jack!
When I'm done I'll be right back.**

Marching stabilizes the child physically and emotionally, providing an organized motor pattern of movement and language when entering the room (Patel, 2008). The entrance sequence of activities provides the body and brain with control, coordinating multiple systems required for improved functioning (Buzsaki, 2006). Children enjoy saying, hearing, and moving to their name, as well as the structure and safety of the experience.

The scooter board is widely used (Ayres, 1979). The child lays on his stomach, hands on the floor, listening to or singing “So You’re Goin’ for a Ride”, a Sesame Street song. He/she propels the scooter board with hands across the floor, head up, to the strong duple meter of the song. The preparatory upbeats, “So you’re going for a” help the child to breath, moving his arms and hands on the floor to the downbeat. When the forward movement is mastered, every conceivable combination of movements follows. This includes going backwards, lying on the back with head down and moving the board with hands, sitting upright when balance is established and using feet or hands to move to the music.

A full size, adult drum set is utilized with each child. Children stand or sit on the drum stool, depending on height, drumsticks in both hands. Each is encouraged to explore the separate drums and cymbals while a song is played on piano or a recording. No limit is placed on how hard they strike the instrument. Use of drumsticks in both hands, in combination with learning to strike the instrument in rhythm, helps them organize movements to make sounds they enjoy. Cymbals have particular importance. The child actually feels their vibrations by touching the cymbal after striking it, which immediately stops the sound. Drum patterns include having the child cross arms over midline to the drum on the opposite side. Some children pound as loudly as possible, others play softly with smaller drumsticks or fingers. This is an intense sensory experience which the child controls. Responses to drum sounds also provide an instant diagnostic tool for sound sequencing, motor control, and sensory needs. Additional rhythm instruments are also used. The teacher plays piano and accompanies the child on drums, introducing keyboard in addition to child sized pianos. Playing piano provides a transition to fine motor movement, the child modeling what they see the teacher do during drum time. Visual motor skills increase when children begin to identify groups of two and three black notes on the piano in both directions. A series of books were written to introduce piano sounds and the vocabulary for its parts.

A swing is used in several ways. Its back and forth movement provides a beat, the torso moving with the rhythm of the swing as the child balances, feet off the floor, hands holding onto the chain. Feet are grabbed or held on the upbeat with a strong push on the downbeat. This coordinates upper body with the legs and prepares the foundation for learning to pump the swing independently. The body functions like a metronome in the swing by keeping the beat while the child sings the song. The swing can also be used to improve facial muscles by having children balance from their stomachs with head and feet down, doing “mouth sillies” with tongue, lips and teeth, such as making a “raspberry”.

The bow is learned by every child, performance an experience they share with parents and each other. This bow is not a curtsy. It is an adult bow with feet together, hands at sides, and head dropping down to the knees. This involves complex motor planning, control, and attention. It also centers the body at midline. The importance of bowing cannot be overstated because it is completely positive, giving applause for something earned. Once learned, children sometimes coach each other through the activity.

Improvement of Memory

All parts of our body have memory, a vast and complicated area (Bugelski, 1979). There is short term memory and long term memory. Short term memory temporarily stores information from all of the senses throughout the entirety of the brain, initiating or stopping input according to category and either positive or negative sensations. The number and order of things remembered lasts about 20-30 seconds (Cherry, Undated). In order to retain the information, the activity must be repeated several times with breaks between. Repetition also occurs through a predictable schedule of activities and by sensory or motor pairing with a verbal activity. Predictability, comfort, context and ritual

help a child to improve memory. Any strongly negative experience codes with other input, effort made to avoid anything that upsets the child's system. Once that occurs it is sometimes impossible to erase the memory and to continue work because of the child's fear that the experience will happen again.

Long term memory is lasting memory. It recalls previously experienced sensations, impressions, information and ideas. It holds and applies knowledge and skills learned from past experience and often lasts a lifetime (Vygotsky, 1978). A time worn example is riding a bicycle. In language, phonology, or the sounds of the words used in natural language, is central to long term memory (Gathercole, 2003). The canon of children's songs provides that phonological component through use of the rhymed couplet. Use of rhyme appears to enhance word recall. It assists in lengthening phrases and sentences because of what can be characterized as an auditory "aim" toward the couplet, words organized and sequenced with the couplet as the end point. Original rhymes invented for each child maximize areas of interest, oral-motor and cognitive skills.

The lesson's structure addresses short term memory and its transition into long term memory. Periods of direct instruction through play are very short, depending on attention span, interest, and enjoyment. This is always followed by free time. Juxtaposition of structured versus unstructured play permits short term memory to process into long term memory. This is repeated throughout the session, so that short term memory cycles into long term many times, resulting in improved and expanded recall. The rhythmic underpinning of music and language provides a long term motor memory prompt. For example, it was observed that when a four year old attempted to retrieve words to a song, he first tapped the rhythm on his chest with his fingers, then able to recall the words.

Every child has a sense that will hold in long term memory longer than another. For some children that is smell. One must experiment with all of the senses to find those which store information most efficiently. That sense is then linked with language, movement and music activities for increased long term memory and language output.

Improvement of Affect

Affect describes the way people grow emotionally and feel another's happiness or sadness. It deals with values, motivations and attitudes, having five components: receiving information, responding, finding worth, organizing the new information with the old, and becoming an advocate for what is learned (Bloom, 1956). Melody's Method is designed for the child to experience positive feelings about themselves, their relationship with the teacher, and encourages them to try new things. This feeling of safety, curiosity, and pleasure positively impacts upon learning as new skills are accomplished with increasing independence. If a behavior is unacceptable, the play partner teacher may be withheld as a last resort. Careful control of the teacher's voice, touch, and facial expressions is required due to the child's close interpersonal relationship and modeling. Sensory, musical, rough play or pretend commonly mediates poor behavior through emphasis on personal boundaries. Affect involves the entire child, its improvement a significant marker of the method's success.

Receiving- Melody's Method provides intervention methods that are received by the child's vestibular and proprioceptive systems, ears, eyes, taste, smell, and fine and gross motor systems (Berger, 2002). Language is received on streams of rhythm. There is laughter and silliness, hard work and seriousness. None are forced to do what they refuse, controlling their environment with "All done" or "No". The activity is then reframed within another context. Affection and respect are received through hugs, kisses, handshakes, cheers and applause. Reception occurs on the child's internal developmental schedule so as not to overload or frustrate. New tasks are slightly beyond their comfort zone. Teacher support, combined with the intrinsic fun of an activity, allows the child to try and ultimately receive success without assistance (Rieber & Carton, 1987). They receive the teacher's help to verbalize frustration, fear or anger, learning words to express the problem, given comforting sensory or music activities. They receive no sudden surprises, transitions carefully scripted in song and rhyme. Melody's Method seeks to avoid a problem rather than fix it.

Responding- Responding in very young children is often on an all or nothing basis. Learning to grade or modulate a response is part of a maturing system. But in the beginning, a response of any kind is sought. No response is the worst response. All parts of the body and brain respond to musical elements in different ways. In some, the first response will be eating food, in others spinning a top. Whatever triggers a child's response is where the method starts. Often a physical experience is needed to "prime the pump" of response. For example, after an activity the teacher waits for the child to talk, saying "Talk to me." Nothing happens. He/she may be picked up under the arms, swing in a circle, and put down with giggles and fanfare. The teacher says "Tell me." This sensory intervention often elicits response, words and ideas in the child, but a sensory stimulus needed to "shake them out".

Value- The child must experience worth in the intervention experience in order to use it. There are many different kinds of value. Accomplishing a difficult task, "I did it!" shows value. The ability to control their body has value. The ability to be understood has value. Making a friend because you have things to say has value. Learning a song you like has value. Feeling good has value. Performing has value. But doing a task to please the teacher has little value. Value is not compliance. It is the intrinsic, internal emotional and physical worth to the child that constitutes value. Whatever they value becomes part of their preexisting concepts, enlarging and changing their world for greater independence and autonomy.

Organization- Each new skill is internally merged with all other skills and ideas. This includes organization of large and small muscles for improved motor functioning without reminders from the teacher. It refers to mouth and facial muscles used for intelligible speech. Included in organization is timing, or rhythm. It is the sequence of breathing before speaking or singing. It is organizing movement so as not to stand too close or far away from another person. It is the integration of actions that become automatic so that new ones can be added. Organization is externally modeled and an internal process. The teacher must be visually organized and purposeful, using an inherent task analysis with

one step leading naturally to the next. This task analysis changes with each child, determined by baseline functioning. An analysis of the steps needed for mastery is then determined and implemented.

Characterization- “Look at me!” “Like this!” “My turn!”. Performance is a meaningful way for the child to advocate and expand his/her set of skills. Correcting peers, siblings or parents about basic courtesies, songs, or dances is another. One five year old boy of Hispanic origin, corrected his parents during a family salsa game, shaking his bottom and hips, saying “No, Mommy. Like me.”

Improved Self Regulation

Self-regulation is not the same as affect. It is the ability to control emotions and behaviors, inhibiting impulsiveness by maintaining balance. It is waiting your turn, being able to delay gratification and showing self-control. This is based on brain functioning and not something a child chooses or does not choose to do. Through intervention they learn to control their urges with a repertoire of strategies that help the child interact with others and the environment. The entirety of the work of occupational therapists in sensory integration deals with self-regulation.

Melody’s Method uses sensory integration techniques to increase the child’s ability to delay gratification, do new tasks, and gain increased pleasure through new accomplishments. This result is called “The Joy Factor”. A constant in the ABC neuroscience study of ten children was the change in self-regulation between the tenth and fifteenth session. Each was required to pair utterances with motor and sensory tasks, done in short, incrementally expanded periods. Initially some resisted by walking away, refusal, tears, or remaining in an activity of their choice. But as skills increased, most became more confident, inhibiting the need to go into free time. On average by the fourteenth session there was a kind of “explosion”. Their words and muscles coordinated, and they moved with exuberance and abandon in a purposeful way, often until exhausted. For example, one five year old girl with significant oral motor and sensory difficulties had refused to do certain activity, sitting on the floor and pouting. A primary goal was to coordinate the downbeat of her hands and feet with the stressed syllable of the word. A floor piano was used on the day in question, her fourteenth session. She refused to work. Then of her own accord, she rose, went to the piano and sat on the floor again. She threw her head and arms back, singing and playing Row, Row, Row Your Boat in perfect up-down coordination with her hands, striking the piano on each downbeat. This lasted approximately two minutes. She stopped, looked up, and smiled, “I did it!” Her ability to inhibit the fight or flight response led to this spectacular performance. The multiple systems involved with language and movement were ready and synchronized into The Joy Factor.

Improved Bonding and Attachment

Bonding is a reciprocal attachment that usually refers to connection between mother and child. It forms the basis of affection that later influences the child's life and involves seeing, hearing, touching and interacting (Bretherton, 1992). It occurs when the child acquires a basic trust in the response of others, with the ability to communicate needs and limit setting.

Attachment is about affection, whereas bonding is about trust. It is a person specific relationship dominated by affectionate exchanges. Developmentally, the person receiving the child's attachment is the one to whom the child goes when outside of their comfort zone, returning to check in before going further out. Wooing (solicitous behavior), shadowing (following you everywhere) and darting (rapidly moving forwards and away) are the toddler's attempts to remain connected while extending territory.

Melody's Method has strong footing in bonding and attachment theory. It involves physical exchanges of affection as appropriate, and child led play to maintain security, comfort and trust. The child can stop the activity at any time and explore the environment at his/her own pace and level of interest. Emphasis is placed on safety. Limit setting is done through juxtaposition of intervention with free play so that by the nature of the activity, limits are set. Structure provides trust and predictability as a framework for new experiences within a 60 minute time frame. The schedule includes:

1. Entrance greeting and eye contact
2. Hang up coat
3. Go downstairs, singing "Here We Go Down the Stairs"
4. Attendance. Pictures of the child and family hang at eye level, are turned over, the child saying "Here" or "I am here", "Mommy is here", etc.
5. Name song to marching in place outside classroom.
6. Going inside to classroom with preplanned activities/materials in place.
7. Implement individualized lesson plan.
8. Pick up toys to song, "It's Time to Put the Toys Away"
9. Sing Bye-Bye song, naming those in the room, working on eye contact and engagement.
10. Leave classroom, go upstairs, put on coat, do reciprocal "Bye-bye" as the child leaves building.

Summary

Melody's Method is based upon neuroscience theories of language, movement and self-regulation. This paper explains basic components that can be used by any teacher with minimal training in music and movement. Traditional children's preschool songs, melodies and rhythms help to expand verbal language use. They are paired simultaneously with motor movement for integration of language with the muscles and senses of the body. Added benefits for teacher and child are improved affect, self-image and esteem, and the inhibition of impulsive behaviors. It is not intended as a replacement therapy, but as an added support for children with disabilities ages 2-5.

ABOUT THE AUTHOR

Marilyn Arons is the Director of The Melody Arons Center for Applied Preschool Research and Education, and a life-long musician with fifty years of teaching experience. Melody's Method is named for her daughter, Melody, who had cognitive, language, memory, fine and gross motor coordination problems and attention deficit disorder. Mrs. Arons received a piano and voice degree in 1961. She taught English and music from 1961 to the present with diverse populations, including non-English speaking, emotionally disturbed, and general education from kindergarten through ninth grade. In 1980 she matriculated in the Neuroscience and Education program at Teachers College, Columbia University, where parts of Melody's Method were formed. She taught piano and voice privately, all students participating in two recitals a year. From 1975-2000 she did special education advocacy work with specialists in all therapeutic and medical fields associated with child development and neurology. These included occupational therapists who introduced her to the importance of sensory integration.

She returned to school in 1999, obtaining a degree in early childhood education from Bank Street College in New York City. Melody's Method was formalized there to improve language and movement skills in children ages 2-5. Tools were chosen to be affordable and user friendly, offering additional interventions for teachers and parents at a basic level, or prescriptive use for movement and language therapists.

BIBLIOGRAPHY

- Allott, R. (2005). How Children Acquire Language: The Motor Theory Account. <http://www.percepp.demon.co.uk/language.htm>. Last visited November 2, 2005.
- Allott, R. (2000). The Articulatory Basis of the Alphabet. <http://www.percepp.demon.co.uk/alphabet.htm>. Last visited November 2, 2005.
- A study on gross motor skills of preschool children. (Undated) <http://www.thefreelibrary.com>. Last visited March 30, 2012
- Ayres, A. (2000). Sensory Integration and the Child, Western Psychological Services
- Berger, D. (2002) Music Therapy, Sensory Integration and the Autistic Child, Jessica Kingsley Publishers
- Bloom, B. (1956) Taxonomy of Educational Objectives, Handbook 1, The Cognitive Domain. New York: David McKay Co Inc.
- Brain rhythm treatment efficacy: Can we fine-tune our brain clocks? (2009) <http://ticktockbraintalk.blogspot.com>
- Bretherton, I. (1992) The Origins of Attachment Theory: John Bowlby and Mary Ainsworth, Developmental Psychology, 28
- Bugelski, B., (1979) Principles of Learning and Memory, Praeger Publishers
- Buzsaki, G. (2006). Rhythms of the Brain. Oxford University Press
- Cherry, K. (Undated) What Is Short Term Memory? <http://psychology.about.com> Last visited March 30, 2012
- Critchley, M., Henson, R.A., (1978) Music and the Brain, Studies in the Neurology of Music. Heinemann Medical Books Limited
- Darragh, Johnna. (2006) The Environment as the Third Teacher, ED493517, ERIC
- Dejean, V., (2010) Dyspraxia-Motor Planning Disorder, <http://spectrumcenter.net>
- Downey, J., Garzoli, E. (2007) The Effectiveness of a Play-Based Curriculum in Early Childhood Education, November 11. <http://teachplaybasedlearning.com>
- Foundations of Music Therapy. <http://www.musictherapy>. Last visited March 29, 2012

Garrard, K. (1991) A Guide for Assessing Young Children's Expressive Language Skills Through Language Sampling, National Student Speech Language Hearing Association Journal, v. 18, 87-95.

Gathercole, S. (2003) The development of memory. Journal of Child Psychology and Psychiatry, v. 39, No. 1

Greenspan, S., Wieder, S., (1998) The Child with Special Needs, A Merloyd Lawrence Book

Interactive Metronome Therapy (Undated) <http://www.dfwthrivemagazine.com> . Last visited March 29, 2012

Kessler, R., (2011) Hugs Follow a 3-Second Rule, <http://news.sciencemag.org>. Last visited February 8, 2011

Linder, T., (2000), Transdisciplinary Play-Based Intervention/Guidelines for Developing a Meaningful Curriculum for Young Children, Brookes Publishing Company

Loewy, J. (1995). The musical stages of speech: A developmental model of pre-verbal sound making. Music Therapy

McLaughlin, T. (1970). Music and Communication. Faber and Faber Limited

Melodic Intonation Therapy. <http://www.healthline.com>. Last visited March 29, 2012

Memory Consolidation. <http://www.human-memory.net>. Last visited March 31, 2012

Neurologic Music Therapy. <http://www.pediatrictherapies.com>. Last visited March 30, 2012

Patel, D., (2008). Music, Language, and the Brain, Oxford University Press

Pratt, R., (2004) Art, dance, and music therapy, Phys Med Rehabil Clin N Am 15. 827-841

Rieber, R., Carton, A., (1987) The Collected Works of L.S. Vygotsky. v. 1. Plenum Press

Rizzolatti, G., Singaglia, C. (2008) Mirrors in the Brain-How Our Minds Share Actions and Emotions. Oxford University Press

Shonkoff, J., Phillips, D. (2000) From Neurons to Neighborhoods, National Academy Press

Short-term memory-Definition. <http://www.wordiq.com> Last visited March 31, 2012

Vygotsky, L. (1978) *Mind In Society*, Harvard University Press

Wang, J. (2004) A study on gross motor skills of preschool children. *Journal of Research in Childhood Education*

What is phonology? <http://www.sil.org> Last visited March 31,