

INTRODUCING MUSIC INTO A LEARNING ENVIRONMENT

Music can play a very significant role in creating an environment in which both the child and adult are open to learning from each other and from the activities or materials which are presented. Music supports what is being taught and learned. When combined with systematic introduction, careful observation, and responsiveness to the child's non-verbal communication signals, music can assist the process of change.

The Initial Decision to Use Music

In deciding whether music or specific musical selections appropriate to use at home, during therapy, or in the classroom you want to answer the following questions:

- Does the music make a difference for the child?
- Does the music make a difference for the therapist (or teacher)?
- Does the music make a difference for the parent (or family)?
- What kinds of differences are observed when specific types of music or specific pieces of music are played?

Selecting the Type of Music

Music can be described or categorized according its structure (i.e. tempo, rhythm, frequencies, tonal qualities), origin (folk music, rock, opera), or its effect on the listener (dance music, "superlearning music", calming music). Several specific types of music have been used successfully to support learning and change in the areas of movement, feeding, sensory organization, language, and communication. These types are defined and described in other papers in this series.

Types of music which have been utilized in the therapy, classroom , and home environments include:

- **Quiet, Calming Music**
To develop quieting and relaxation of the mind and emotions in order to enhance communication and learning...i.e. during meals, rest periods, bed time, quiet times with an adult.
- **Superlearning Music**
To enhance receptivity to learning through a 60-beat-per-minute tempo. To provide a clear rhythmical structure which is similar to the rhythms of the heart beat, sucking and walking gait. To assist mental and physical relaxation.
- **Hemi-Sync™ Metamusic**
To create a sustained focus of attention for learning. To facilitate a balanced activation of the information processing capabilities of both the

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right and left hemispheres of the brain. To increase the organization and integration of sensory information. To provide physical relaxation with simultaneous mental alertness. To reduce fearfulness and negativity which interfere with learning. To get a good night's sleep.

- **Folk Music**

To provide a clear rhythmical structure and tempo as a basis for facilitation of coordinated body movement. To provide the opportunity for exploration of vocalization, sound play patterns, gestures and other forms of communication. To provide rhythmical opportunities for the stimulation of the face and mouth. To provide an environment of mutual enjoyment and shared rhythms for the child and adult.

- It is helpful to have 2 or 3 selections of music from each general category of music. There is a wide range of personal preferences in the children and adults you are working with. It is important to find the type of music which is appropriate to use with the child and to have enough variety within that type that you don't have to consistently use the same taped selection.
- Hemi-Sync Metamusic can assist children in experiencing some very profound differences in the way they physically feel and process information. Sudden changes can be frightening and can create added resistance. It may be important to introduce changes involving relaxation and focus of attention gradually. Superlearning music with a 50-70 beat-per-minute tempo has a similar effect for many children and is very gentle. You may wish to begin with this type of music, and gradually introduce music containing the Hemi-Sync signals into the environment. Hemi-Sync also produces a more gradual effect when played over open speakers. Listeners report a much stronger effect when they listen to Hemi-Sync Metamusic tapes through headphones. Thus, a continuum of experiential intensity can be created according to the type of music or sound selected and according to the way it is presented to the listener.
- Identify the child's characteristic patterns of sensorimotor, emotional, and learning behaviors which might be influenced by a musical background. These could include factors such as muscle tone, movement coordination, attending behaviors, activity level, acceptance of touch, acceptance of movement, acceptance of unfamiliar activities, and imitation abilities.

- Identify changes or directions in these specific areas which would benefit the child. What changes would you like to see happen more easily? (i.e. more frequent eye contact, reduction in hypertonicity, acceptance of touch to the face, greater trust and willingness to try new activities, regular sucking rhythm?)
- Identify the general type of music or characteristics of a specific piece of music which would support the changes you would like to facilitate. For example, a very rhythmical piece of music might support greater rhythm in walking or sucking; Hemi-Sync sounds on a tape would support greater attending and sensory organization.
- Within the category of music you have selected, choose a tape which you (i.e. the therapist, teacher, or parent) like and respond to positively. If you select music which is unpleasant for you or which you dislike, you automatically communicate your discomfort to the child. This can influence children's responses in a negative direction so that their reaction is more a response to you than a response to the music.
- It is helpful to listen to the tape selections ahead of time and become familiar with your general response to the tape. This can assist you in choosing the tape(s) you will use with the child.
- Observe your response to the musical background as you use it with the child. Some of the changes that you may notice include: more flowing rhythms in moving with a child with folk music; enhanced intuitive knowledge of when to continue or alter an activity; stronger focus of attention in the shared activity (i.e. less mind-wandering or mind-chatter); easier awareness of the child's non-verbal communication; increased intuition; increased creativity.
- Identify the child's verbal or non-verbal patterns of communication. How does the child express likes, dislikes, or preferences in other situations (i.e. turning away, increasing the level of hyperactivity, reducing eye contact, arching, crying or fussing, looking toward the object, reaching, smiling)?
- Introduce the music you have selected to accompany the therapy or home activity you have selected.
- Observe the child's reactions for any signs that the music is aversive. If the music appears to be aversive in any way, turn it off for that period of time. Explore another tape in the same general

category of music (i.e. folk music, Superlearning Music, Hemi-Sync Metamusic) at several other sessions, and observe the child's response. Decide whether the child's aversive response is to a particular piece of music or to an entire category of music.

- Observe the child's reactions for signs that the music is pleasant or enjoyed. This may take the form of increased relaxation, smiling, fuller participation in the activity, or looking with interest toward the tape player.
- If the music you have selected appears to be positive or helpful for at least one person in the therapy, classroom, or family setting (i.e. child, therapist, teacher, caregiver), it may be used, providing it is not aversive to the others in the environment.
- Keep a journal describing the child's behavior and responses during sessions or time periods in which you are using the music you have selected. You may wish to select a specific area or behavior to measure during the periods in which you use the music. If you have taken the same measurements for a number of sessions before you introduce the music, you will have established a baseline for comparison. The journal and any measurements you make will allow you to decide how valuable the music background has been for the child.
- Keep a journal describing your own reactions to the music background and changes in your response to the child and the time you spend together. This will enable you to decide whether the musical background to your therapy, play, or learning session enhances your own learning and interaction.
- The speed with which change occurs will vary with each individual. For some children and adults there is an immediate awareness of change. For others, there may be acceptance of the music and a slower or more subtle change in behavior or learning. Be aware of small changes which can occur, and resist the temptation to eliminate the music because large shifts do not occur quickly. For example, a child may engage in a familiar activity such as working a puzzle in the same way with or without the music. However, when the music is on, the child shares the activity with the mother and even leans against her. When the child works the puzzle without the musical background, he moves slightly away and prefers to play alone. If changes in working the puzzle were the sole measure of effectiveness, the more subtle interpersonal change might go unobserved.

- The frequency with which the music is used will depend upon the child's response and the desirability of using the music in different settings. Some children profit from using music throughout the day; others benefit more from brief (30-45 minute) periods once a day. Some music seems to create an effect primarily while it is being played (i.e. folk music). Hemi-Sync Metamusic, appears to create a long-term learning or carryover effect. Because of the carryover effect it is not necessary to use Hemi-Sync tapes throughout the day for them to be effective. The tapes may also be used frequently during the day, however, if both the children and adults in the environment find them pleasant.
- If the tapes are used frequently each day, it is helpful to use breaks during which no music is played. This creates a contrast for the child and provides an opportunity to continue the behaviors facilitated by the music. Hemi-Sync tapes are essentially training wheels for the mind which assist the brain with a new way of organizing and integrating sensorimotor experiences. Once this has been learned, the training wheels are no longer necessary.

Equipment

- Hemi-Sync tapes are designed to be played on a stereo tape playback unit. The Hemi-Sync effect is created by different frequencies on the two channels of a stereo tape. This will not occur if the tapes are played on a monaural tape player.
- A tape player with a Continuous Auto-Reverse feature or CD with programmable repeats eliminate the distractions that occur when a tape reaches the end and must be turned over in the middle of an activity. It allows a tape or CD to be played all night.
- A stereo tape player (i.e. "boom box") with detachable speakers is helpful in creating a headphone-like effect when the speakers are placed on either side of the child's head. This may be desirable if you wish to use headphones with infants or young children who cannot tolerate anything directly touching the ears or head. If lying on the back is appropriate for the child and the activity selected, the speakers can be placed within two-inches of each ear. Small individual speakers can also be purchased to use with a Walkman-type cassette player. Since these players are small and often have an auto-reverse feature, this combination may offer many advantages in flexibility and price not found in the larger tape players.

- Headphones may provide an advantage for specific children or environments. Headphones enable the child to listen to music at a low volume in an environment where an open-speaker system is unavailable or undesirable. Music through headphones would enable a child to listen to quiet music while driving in the car, in a classroom, or while taking a school examination when music is not desired for others in the same room. Since the effect of Hemi-Sync Metamusic is more intense with headphones, listening through headphones may become important for some children.
- Most commercial headphones are made for adult head sizes. They often slip and are uncomfortable for small children. Several alternatives exist in customizing headphones for infants and toddlers.

Purchase inexpensive headphones with a metal band. Most metal headbands of this type have a bump or metal hump toward the end to prevent extreme movement of the earphones as the band is adjusted for different head sizes. Use a metal file to remove this bump...giving a full range of movement of the individual earphones on the metal band. Adjust the metal band to fit the size of the child's head. Secure the band size with masking tape. Use metal cutters to remove the extra length of the band so that it doesn't poke into the child. Since these headphones are relatively inexpensive (i.e. \$6-12), several could be constructed, either for different children or for different ranges of head size.

Or

Purchase inexpensive headphones. Use metal cutters to remove the earphones from the band. Alternatively, purchase the type of earphones designed to be inserted directly into the ear canal. Adapt an infant/child's cap or hat, sewing in a flap or pocket which can be closed with Velcro or a snap. When the child wears the cap, these new pockets will be on the inside, directly at ear level. The separate earphones are inserted into the pocket on each side. The child simply wears this music hat to receive the music. This works particularly well with infants or toddlers who generally do not adapt well to headphones. This should be used with caution with children who do not like hats or having anything touch the head or ears.

Location

- Music can be utilized during individual therapy sessions (speech and language therapy, occupational therapy, physical therapy, counseling or psycho-

therapy), at home, and in the classroom to assist with relaxation and learning. Somewhat different considerations and guidelines may be used in each setting.

Music during Individual Therapy

- It is ideal for music to be introduced initially in therapy sessions where the child's responses to the music and to learning can be carefully observed. If the music is used in the background for therapy activities that are familiar, differences in the child's responses can be observed with greater ease.

- Therapy sessions can be utilized to identify individual areas of change which could then become generalized through using music in other environments. Therapists can work with an interested teacher in identifying individual children in the classroom who might benefit from the group use of music.

Music in the Home

- When music is introduced into the home setting, the therapist (or teacher) should develop a plan with the family. This plan would include an agreement on the tapes to be used, the times or activities during which they will be used, and the frequency of use. A journal can be kept by the parents to note any changes in the child's behavior which they observe.

- It is helpful to develop a tape library which can be loaned to the family for a period of several weeks. This will enable them to listen to tapes with the child and decide which ones work well at home. When the family has identified tapes that are liked by the child and adults, these can be purchased.

- Quiet music (i.e. Centering Music, Superlearning Music, Hemi-Sync Metamusic) can be used in a home or family environment at meals, bedtime, or in specific play or learning activities which would be supported by physical relaxation, mental alertness, or openness to communication.

- Music can be used during an activity or prior to it. For example, the child might spend a quiet time with soft music playing for 30 minutes before the dinner meal; or the music might be used during the meal itself.

- Folk music tapes can be used with all of the children in the family. When brothers and sisters are involved with dancing together, singing, turn-taking, and sharing with the music, the disabled child is no longer the center of attention. It is important to involve the other children in a family during activities which are fun and therapeutic for the child who needs therapy carryover activities.

Music in the Classroom

- Select quiet, organizing music to use in the background as children enter the classroom. This creates a non-verbal message of intention to become more quiet and organized for the school day.
- Accompany specific types of activity with a specific piece of music. Children will gradually associate the music with the activity and will learn to carry over the effects experienced with the music when it is not playing. For example, one piece of music might be played during lunch while another might be used during rest time or table activities.
- Place the tape player so that the speakers are directed toward the children in the classroom. To receive the benefit of the stereo presentation of Hemi-Sync sounds, the speakers should be directed toward the children.

If Hemi-Sync Metamusic is to be used in the classroom with children with neurological or emotional dysfunction, it is particularly important to observe each child's reaction individually before presenting this music to the entire classroom. A small number of these children may show a more disorganized or aversive response to the Hemi-Sync signals. It is helpful to identify children who appear to benefit and those who may indicate that they do not like the sounds. If there are children in the classroom who are clearly irritated by Hemi-Sync Metamusic tapes, these tapes should not be used while the sensitive children are in the room. The tapes, however, might be used with other children while the sensitive child was involved in a pull-out activity or if the speakers are directed so that they are not facing children who might be irritated by the sounds.