

Music and Literacy Development in Young Children with Hearing Loss: A Duet?

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Question: How do we teach young children to read?

Answer: We don't!

In 1965, linguist Noam Chomsky revolutionized the educational world with his theory that children are "wired" to learn the language into which they are born. All that was required was access to that language and the child would simply pick it up - "caught not taught." That prompted psycholinguist Frank Smith (Pearson & Stevens, 1994) to make the leap that children learn to read and write in much the same way that they learn language. In his seminal book, *Understanding Reading*, Smith (2004) proposed:

1. One learns (is not taught) to read through the process of reading and being read to.
2. Readers make sense of what they read based on what they already know. They have a prior "context."
3. New meaning is brought to the written word through prediction and is based on conventions defined by the culture within which one lives. Comprehension is based upon prediction made possible by convention.

This notion challenged the "skill and drill" method so popular in the educational world previously. Pearson & Stevens (1994) discovered that when children read words within a story context, they were able to read

many more words than if given an unrelated word list. In other words: Comprehension and identification are much greater within a context.

Thus, the "sound-it-out" approach is not very effective in providing meaning. If prediction is at the core of reading, then we need to ask specific questions about what we will read next. ("What do you think the boy will do now?" Or "Where do you think the kitty will go?") We also need to be sensitive to the cultural knowledge base of the child; texts lying outside the current knowledge/experience of a child will not help that child learn to read.

Thus, we start from what the child currently knows and expand from there. Likewise, a child will be unable to read a word that s/he has never heard before, so a strong language base must be in place before reading will come.

Question: How do we teach young children to sing?

Answer: We don't!

Noted music educator Edwin Gordon (2003) argues that young children learn as much by themselves and from other children than they do from adults. He proposes that the best thing caring adults can provide for their children is informal guidance in music. This includes

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access to a rich and varied music environment from birth, putting in place a strong music base. Children need to hear, listen, move and make all kinds of music before they can eventually learn to read, write and understand it. If we take Smith's (2004) proposal and apply it to music, it might look like this:

1. One learns to sing through the process of singing and being sung to.
2. Musicians make sense of what they hear based on what they already know (i.e., they understand the music that is part of their culture, but may struggle to attach meaning to music of other cultures).
3. Meaning is brought to music through prediction (i.e., one knows what the last word or pitch of a phrase will be based on having heard the song or others like it before).

The Road to Literacy: Phonological Awareness and Music Perception

Phonological awareness, or the ability to distinguish, pronounce, and manipulate the sounds in language, is best served through listening (Perigro, 2001). And, as Goswami (2009) points out, in all languages studied, phonological awareness is fundamental to reading acquisition. A child with typical hearing will have mastered all the phonologic awareness needed for literacy by five to seven years of age.

Historically, research has reported lower levels of literacy in individuals with hearing loss, describing the typical reading plateau that high school students with hearing loss attained as the "fourth grade slump" (Geers, Strube, Tobey, Pisoni, & Moog, 2011; GRI, 2003; Robertson, 2011).

With recent hearing technologies and auditory/oral approaches, however, higher levels are possible for those children who have "learned to listen" (Fry, 1966; Robertson, 2009, 2011). The latest research concludes: A child with a hearing loss, properly aided and immersed in an oral environment, will attain the same skills necessary for literacy at a delayed, but normal progression of development (Geers, Strube, Tobey, Pisoni, & Moog, 2011).

We know, too, that music and spoken language, both relying on the auditory system, parallel each other in development (Barton, 2010). In addition, evidence supports the correlation between music skills and phonologic awareness and reading development in young children (Anvari, Trainor, Woodside, & Levy, 2002). This suggests that music perception and phonologic awareness share some of the same auditory processing structures, as well as the skills necessary for reading. The implication?

For a young child with a hearing loss, this presents a strong case for the inclusion of music as part of the listening and spoken language strategies applied in early intervention. Both "train the ear."

Table 1 pairs literacy milestones

Table 1. Adapted from Campbell & Scott-Kassner (1995), FIRST YEARS (2010), Gordon (2003), Heavner, K.S. (2008), McDonald (1979), MENC (2010), Moog (1976), and Schwartz (2008).

MUSIC AND LITERACY DEVELOPMENT IN TYPICAL HEARING CHILDREN Birth to Five Years		
Age	Music	Literacy
6-12 months	Vocalizes and moves to music; looks for the source of music; prefers higher pitched voices, as in parentese ("baby talk"); begins to recognize familiar songs.	Vocalizes when read to; looks at and pats pictures; responds to parentese reading; prefers pictures of faces; "helps" turn pages; recognizes familiar objects.
12-18 months	Carries instruments around while playing; holds and plays instruments correctly; recognizes and asks for familiar songs; pays attention to lyrics; sings snippets of learned songs.	Carries books around; holds book right side up; turns pages; asks to be read to; learns that words have meaning; points to and names familiar objects.
18-24 months	"Sings" along; fills in words at end of song phrases; sings familiar songs; lyrics more accurate than pitch.	"Reads" along; fills in words; recites familiar passages; learns that print has meaning; enjoys the routine of reading.
24-36 months	Asks for favorite songs and instruments; sings spontaneously to self at play; knows if adult sings song incorrectly; able to sing songs with lyrics and (occasionally) pitch correctly; able to hold a pick to strum; beginning to understand song lyrics (and emotions).	Looks for favorite pictures; "reads" to self; upset when adult gets words wrong; recites phrases and some stories correctly; turns paper pages; story plot emerging; coordinates text with pictures.
3-4 years	Enjoys singing songs repeatedly; likes silly songs and story songs; experiments with different voices to sing familiar songs in a funny way; uses rhythm instruments to accompany songs; sings ABCs and number songs; melodic contour is intact; makes up songs; follows color-coded chart to song lyrics.	Enjoys reading books repeatedly; plot more important; tracking text; willingly listens to longer books; some letter and number recognition; retells familiar stories; starting to rhyme.
4-5 years	Can differentiate simple rhythmic and melodic patterns; identification of simple rhythmic notation; beginning to recognize familiar melodies without lyrics; can match beat to others; enjoys imaginative songs.	Can differentiate and count syllables; identifies rhymes; letter and number recognition, identification and reproduction; starting to spell words they are familiar with (especially their name); enjoys making up imaginative stories.

alongside music milestones, representing the sequence of stages a child with typically developing hearing masters on his or her way to becoming musically competent and literate. Since children develop and grow at varying rates, the charted time frames may vary slightly, but the developmental sequence follows these established patterns. For children who are deaf/hard-of-hearing and utilizing a listening approach to language, the timelines may need to be adjusted, but the skill sequence is the same. Specifically: Children learn their native language by hearing it, then speaking it, and finally reading and writing it.

Music learning follows the same sequence. Paraphrasing Roach van Allen (1968), one of the early proponents of transcribing children's oral stories to then use as materials to help facilitate reading and writing: If you can hear, you can listen, if you can listen, you can talk (sing), if you can talk (sing), you can read. It's called the road to literacy!

Summary

Current research supports the notion that children with a hearing loss who are identified early, use high-quality hearing technology, and are immersed in the listening and spoken language approach, will eventually attain literacy skills equal to those of their hearing peers (Geers, Strube, Tobey, Pisoni, & Moog, 2011). It follows, then, that music, an auditory experience, may aid in the development of phonemic skills required for literacy. Indeed, early intervention music curricula have demonstrated enhanced prereading and writing skills of 4 to 5 year old children enrolled in such programs (Register, 2001; Standley & Hughes, 1997). Music and literacy may actually be a developmental duet! Future research is needed to determine the exact relationship between music learning and literacy.

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