

The Earliest Music Lessons

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Music lessons come in many forms. There are formal lessons, which are highly structured and follow a carefully worked out series of increasing complexities. There are also informal lessons. Most often these consist simply of watching and listening to someone perform. Both provide opportunities to learn about music and both promote and encourage the incorporation of a musical sense into cognition and emotion. Today we consider informal music lessons, in particular the earliest lessons in music, those of the human infant.

In the inaugural issue of *Music Research Notes*, we highlighted the surprising musical capacities of infants ("The Musical Infant", *MRN*, 1994, 1, #1). Also noted were some parallels between music and language competencies and the fact that infant language behaviors are strongly reinforced and encouraged by parents and caregivers, in contrast to musical behaviors, which are not. Here, we expand on this theme, focusing on a generally ignored but hardly insignificant fact. Infants receive music "lessons" beginning immediately after birth, from parents and others. These lessons are in the form not only of music but also of *language*. Although music and language are normally viewed as quite separate, they actually have fundamental commonalities, particularly as practiced to infants.

Let's begin with language. Parents, siblings, relatives, virtually everyone speaks to the newborn child. However, this sort of speech turns out to be quite different from other speech, so called "normal" speech. In what ways is "baby talk", more generally referred to as infant-directed speech, different? In several ways, as revealed by extensive scientific study. First, the content is simple. Infants do not understand complex and abstract speech and thus such speech is avoided when talking to them. Second, baby talk often involves non-words, repeated sounds "coo-ty-coo-ty-coos", if you will. Third, infant directed speech is often structured to arouse attention and so the words and other sounds targeted for infants are themselves reinforced by the infant's behavior. What works is often repeated, what doesn't is often discarded in a given situation. We will return to this interactive aspect a bit later, noting for now that the baby is not merely the passive recipient of speech.

Together these and perhaps other factors result in infant-directed speech whose prosody is in marked contrast to that of normal speech. It has simple repeating pitch contours (patterns of pitch changes) and slower tempo, often with an overall higher and more restricted range of pitch (1). Often, vocal contact with infants has a rather sing-song character and the dividing line between this type of speech and singing, with or without words, is not always clear.

In any event, speech to infants does, of course, constitute lessons in language, more specifically lessons in speech, for in the absence of hearing speech, normal speech fails to develop. And to the extent that such speech has musical qualities, it also provides lessons in music.

But of course infants hear quite a lot of sound that is unambiguously music, because people sing to them. Lullabies are devoted almost exclusively to children, beginning in infancy. And interestingly, lullabies have many of the same characteristics as infant-directed speech. Thus both have simple pitch contours, and repeating rhythms. Furthermore both contain many elongated vowel sounds. These characteristics are not restricted to nationality or locale. Rather, they are found across cultures; those investigated to date are North, Central and South American, North European, East Asian and Central Asian (2). In each case lullabies have the same basic features.

This cross-cultural commonality raises an interesting question. Is there something about lullabies that is readily identifiable across cultures? Do ordinary listeners not trained in music, who do not understand a different language or the culture from which it springs, know a lullaby when they hear one? Trehub and her colleagues addressed this question by asking English speaking adults to listen to two songs each from several cultures and pick the one which was the lullaby (3). Listeners were correct far more often than chance. Of note, lullabies were picked on the basis that they were the simpler of the two songs in a pair. Moreover, this determination was made even when all songs were altered from their original recordings by electronic filtering to remove words and even when the songs were electronically altered so they had the same timbre. In a follow-up experiment, listeners failed to correctly identify lullabies when sound cues that indicate vocal quality were removed. The authors concluded that lullabies were detected on the basis of their sounding similar to prosodic the characteristics of speech to infants.

As mentioned above, casual observation indicates that infants are not merely passive listeners. The way that they react to vocal communication is noted by the speaker or singer, whose vocal behavior in turn might be affected. This issue has now been studied systematically in an experiment on the contribution of the infant (age range four to thirteen months) to the quality of maternal singing in two cultures, North American and East Indian (4). Mothers sang a song of their choice both with their infant present and absent. Adult listeners judged for which of the two recordings the infant was present. The songs selected included many play songs (e.g., "Twinkle-Twinkle...") and also religious songs and some lullabies but the findings pertain to all of these types. Songs in the presence of infants were detected successfully within both cultures. Furthermore, correct identification was also found across cultures. Some of the cues apparently used to make correct judgments were the emphasis on sustained vowels, more gliding between pitch levels and slightly slower singing when infants were present. Thus, there is a distinctive style of singing to infants. It appears to depend on an interaction between singer and infant listener and its features are closely related to infant-directed speech.

Overall, it now seems clear that there is little distinction between infant-directed speech and song, that infants react to the prosodic and musical qualities of the two forms of vocal communication, and that the earliest of language lessons are in no sense merely linguistic. These conclusions support the view that the new human comes "equipped" with both language and music competencies.

A final point to ponder. While language lessons increase intensively and always evolve from informal to formal as children enter formal education, music lessons generally don't. Parents and family increase their speaking to young children but it seems that they generally stop singing to them. Perhaps parents should not only continue to sing but also encourage young children to sing as well as to speak. If their early music lessons continued, informal though they may be, greater development of musical as well as linguistic abilities might be attained.

Footnotes

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