

Developmental considerations in children’s song exposure: A commentary on Verosky (2022)

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ABSTRACT: In this commentary, I discuss Verosky’s article, “Essen as a Corpus of Early Musical Experience” from my position as a developmental psychologist. I consider how Verosky’s findings connect to what is known about early cognitive development, discuss how the corpus fits into efforts to characterize early environments, and raise questions for future study.

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IN this work, Verosky seeks to contextualize a widely-studied corpus, the Essen Folksong Corpus. Specifically, he asks: how well do the statistical properties of Essen reflect music North Americans hear as early listeners? Verosky compares a subset of Essen’s properties (scale degree frequency, temporal association, 4-gram, downbeat probability, and average duration) to a novel corpus of children’s music, as well as two other corpora (Schubert, Billboard). He reports that Essen’s properties correlate strongly with the properties of children’s songs, more so than to properties of the Billboard corpus. The conclusion is that Essen is reasonably representative of children’s songs, at least on the properties examined here.

What can be gained by investigating the properties of children’s songs? Verosky points to a body of research investigating listeners’ responses to music as predicted by Essen-derived statistics, which typically assume that Essen’s properties reflect the statistics of music heard by the average North American listener. Does Essen *actually* reflect “everyday”, real-world musical exposure? Similarities between Essen and highly familiar, well-known children’s songs provides some initial support for this assertion.

Verosky notes that children’s songs may be particularly over-represented in the music children and infants initially hear, and may therefore play an especially important role in “music acquisition” (or “enculturation”). Research in neurocognitive development indeed points to a special role for early experience. For instance, early exposure to specific stimuli (such as species-specific faces, species-specific voices, and languages) shapes infants’ perceptual system to become tuned to relevant input (e.g., Werker & Tees, 2002; Pascalis et al., 2002; Kuhl et al., 2006). Evidence for similar tuning processes have been observed in the domain of rhythm (Hannon & Trehub, 2005a, 2005b) and melody perception (Lynch et al., 1992; Kragness et al., 2022, unpublished conference poster; Trainor & Trehub, 1992). From this perspective, this period of relative neural plasticity is indeed likely to play an outside role in musical enculturation.

Verosky largely focuses on noting *similarities* between Essen-derived statistics and children’s song statistics. Identifying and investigating differences could be valuable, as well. For instance, Sato and colleagues (2019) have shown that across the globe, children’s songs and adult songs differ on features that partially reflect differences in vocal range. Accordingly, children’s and adults’ songs are likely to have divergent statistical features. Sensitivity to certain features might increase or decrease across development as a result of the changing musical environment. If so, this could potentially explain the protracted developmental trajectory for musical enculturation (Hannon & Trainor, 2007): although even young infants can extract statistical information from stimuli, such as frequencies and transitional probabilities (see Saffran & Kirkham, 2018 for a review), sensitivity to key relationships appears to be present only around the preschool years and sensitivity to harmonic relationships is apparent even later (Corrigall & Trainor, 2009, 2010, Kragness & Trainor, 2018; Politimou et al., 2021; Trainor & Trehub, 1994). A fruitful direction could be to examine how well children’s expectations align with the statistics of child-directed vs. adult-directed music at different stages in development. Further research could explore whether shifts in expectation are



related to neurocognitive maturation, accumulation of musical experience, qualitative changes in musical experiences, or other factors.

The author generated a novel children’s song corpus using material drawn from previous studies of children’s songs (McGuire, 2000; Mang, 2005) and a U.S. State Department website for English language learners. This effort represents a practical first step towards characterizing children’s musical exposure, and is aligned with the author’s goal to create a corpus of tunes highly familiar to North American listeners. An open question is how much of children’s musical exposure is actually constituted by children’s songs. Recent work in the developmental sciences has focused on capturing the sounds and sights available to children to inform theories of knowledge and skill acquisition (e.g., Franchak & Adolph, 2010; Fausey et al., 2016; Sullivan et al., 2021). In the context of music specifically, the MendozaMusic audio corpus is a noteworthy recent effort to characterize infant musical environments (Mendoza & Fausey, 2021, 2022), and it has been proposed that such corpora could illuminate understanding of musical development (Benetti & Costa-Giomi, 2020; 2021, unpublished conference presentation; Wojcik et al., 2022). Corpora like the one reported here, in combination with “ecological” audio corpora, promise to lead to numerous insights about children’s musical environments across development.

Though these corpora provide a window into the information is *available* for learning, children are unlikely to learn equally well from all information in their environments. Active engagement (compared to passive listening) may be especially important for guiding learning. One previous study indicates that active engagement facilitates infant sensitivity to tonality compared to passive exposure (Gerry et al., 2012). While infants and children are undoubtedly surrounded by a wide diversity of musical styles and idioms, it is likely that particular attention is paid to songs that are geared towards their age group, such as those identified in the novel corpus. Moreover, many of the identified songs encourage additional engagement, such as through gestures (for example, hand movements to “The Itsy Bitsy Spider”). Although this song corpus may not fully represent a typical day of children’s music listening, it may well represent the music that elicits the most attention and engagement from child listeners, and may therefore prove to be the most influential in their music enculturation. Future work should consider both *what* is in children’s environments and *how* children are interacting with music.

The author has shared the corpus on the Open Science Framework, facilitating future use of the data in corpus studies or in behavioral studies with children or adults. This work represents a step forward in understanding the musical environment in which North American children become enculturated.

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