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### Children's Song Acquisition: An Examination of Current Research and Theories

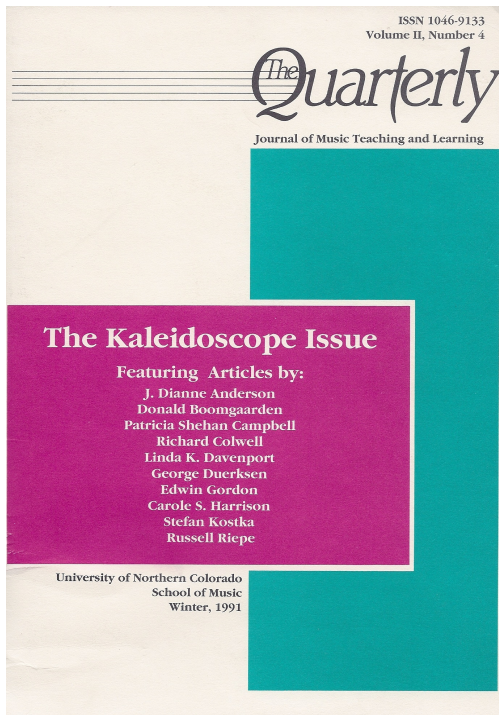
J. Dianne Anderson  
*Arizona State University*

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**Author(s):** J. Dianne Anderson

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# Children's Song Acquisition: An Examination Of Current Research and Theories

By J. Dianne Anderson  
*Arizona State University*

**T**he perpetuation of a culture or society is dependent on a number of factors. Scholars, anthropologists, and ethnographers subscribe to various views of those elements they judge crucial for cultural survival. Language, religion, fine arts, sciences, or any other societal feature continues its existence only so long as it is valued and practiced by a people. While acknowledging the importance of these and other factors, the focus of this paper is not on the *what*, but rather the *who* and the *how* of musical cultural preservation. In whom are traditions and practices entrusted, and how are they instilled?

It is believed that within any society the children are the carriers of culture, for they are taught the "essence" of the cultural media. So it is with music (Campbell, 1990). Nettl (1983) states that "If ethnomusicology claims to study all of the world's music, it must, in addition to explicating the central repertory and style of a society, make special efforts to understand as well the music of those subdivisions of society that live outside the mainstream [including]...children" (p. 344). Thus, information regarding the ways by which children know, experience, and perpetuate music traditions, together with the ways in which they acquire these traditions, should be of great interest to those who value the study of world musics.

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*J. Dianne Anderson is completing the requirements for the doctoral degree at Arizona State University.*

## Children's Music Universalities

Music universalities are elements common to all musics the world over; their existence is recognizable and identifiable in the musics of all cultures. According to Borris (1981), "The fact that the music of various cultures appeals to listeners in the whole world proves that in each music there are universal sound elements. They are not contradictory to the elements of national music, which we refer to as 'idioms'" (p. 69). This powerful assertion finds support among scholars who have identified music universalities.

Differences among various world musics seem glaringly obvious upon first hearing, and the most generic description of music must account for variance. Yet Borris states that rather than emphasize the differences in music materials (e.g., melody, harmony, rhythm), one should focus on the gestures and psychological qualities that differentiate musics and create national idioms. Citing Bartók's folk-song contributions as a role model, Borris (1981) urges the removal of all boundaries to understanding music languages and encourages the linking of music universalities within national idioms. This claim is supported by Toynbee's (1971) prediction that music and musicians could be the unifiers of mankind.

Nettl (1983) hypothesizes that music universals do exist because most societies have experienced direct or indirect contact with other societies, thereby creating a macrocosmic musical repertory with structural features specific to smaller repertoires. His criteria for music

universalities require that they: (1) fit the definition of music; (2) be found everywhere; (3) exclude what could conceivably be regarded as music, but is not actually present in cultures of the world (1983: 38). He differentiates between universals of sound and statistical universals of music by describing the latter as typical of the "healthy majority of musics...[which focuses on]...consensus of world's societies, not physiological or perceptual aspects" (p. 38). He identifies universalities of sound, singing style, and children's musics.

Several universalities of sound classified by Nettl (1990) include: (1) close approximation to a major second as the chief melodic interval; (2) tendency of most musics to descend at the end; (3) internal repetition and variation; and (4) a rhythmic structure based on distinction among note length and dynamic stress. Statistical universals include: (1) tetratonic and pentatonic scales of unequal intervals, often major seconds, minor thirds, and singing in octaves; (2) stanzaic song and piece structure; (3) use of idiophones and sound tools; and (4) large number of songs and pieces that are very much alike along with exceptional material at borders that is often the most highly valued.

Regarding singing style, Nettl states that though certain aspects of musical culture may undergo rapid transformation, singing style and overall sound patterns change very slowly. Singing is one form of music that is most characteristic of and closely tied to cultural value structure. The stability of singing style within cultures has led some scholars to propose that singing and sound are tied to heredity and race; this opinion asserts that the way the voice is used is directly related to racial peculiarities, appearance, skin color, and other racial features. But Nettl (1990) argues against this narrow view, emphasizing the fact that Western people can perform Eastern musics and vice versa. Although singing in African music cultures is character-

ized by yodeling, growling, and raucous imitative animal cries and nature sounds, it is intelligible to most Western ears because it is more or less diatonic, with pentatonic scalar progressions which utilize major seconds and minor thirds (Nettl, 1983).

Nettl stresses the significance of children's songs by treating them as a musical subset, and groups the use of lullabies, games, and plays which aid children in learning the culture and acquiring the rudiments of musicianship as children's musics universals. He further describes children's music as possessing short forms, restricted scales with intervals

from semitones through minor thirds, and employing repetitive rhythms. Other studies of children's musics concur with Nettl's assertions (Shehan, 1987; Davidson, 1985; Miller, 1983).

The existence of these music universals verifies that all cultures share music commonalities. If, as posited earlier, children are the carriers of these various musics, are there also common ways in which children acquire their musical

language? Specifically, is children's song acquisition the same regardless of cultural parameters? The examination of possible theories related to the process of children's song acquisition may offer valuable insight to these queries.

### **Song Acquisition of Children Early Childhood Research**

Some scholars have examined parallels between language acquisition and song acquisition. In language, infants begin speech by making utterances common to all languages, but increasingly produce only sounds heard in their own cultures. This process (see Gardner, 1981) typically is characterized by the following stages:

- 2 years: 2-3 word utterances
- 3 years: sentences
- 4 years: grammatical structure and expressive powers.

Gardner's (1983) theory describes a more

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specific sequence for song acquisition:

15 months: undulating melodic fragments of brief intervals;

18 months: intentionally produced pitches (major second, minor third)

2-2 1/2 years: spontaneous song—continual expansion of the intervals to include fourths and fifths; undefined and unmemorable; unorganized; lacking tonality and harmony, and rhythmically irregular;

2 1/2 years: fragments of learned song interspersed in spontaneous song;

3-4 years: learned song develops rhythmic and lyrical structure, but remains fragmentary; attempts to reproduce overall learned songs of the environment results in the domination of the learned song; songs still lack tonality;

4 years: retention of lyrics and rhythms for learned songs; melodic contour is also mastered;

5 years: develops ability to identify underlying pulse; masters the tonal elements and is able to maintain tonality across phrases.

Another research project, conducted under the auspices of Harvard's Project Zero (Davidson, 1985b), addressed the parallels of language and song development of nine children (ages 1-6 years old). Three levels of children's song singing were reported in the findings. The first stage featured rhythm. According to the study, a child's ability to perform the words of a song is related to the ability to match the rhythm of the song. Second, the melodic contour of song is achieved, although exact pitch relationships are not secured. The final level of mastery is the achievement of lyrics and rhythm with increasing control of pitch accuracy.

Davidson's contour-scheme model of children's song acquisition provides an interesting alternative to the interval-matching model known as the Ur-song (discussed in a later section). He identifies contour schemes as modes of melodic organization that lie between the vocal play of late infancy and the organized tonal knowledge of seven-year-olds. The three components of Davidson's model include a tonal frame, a level of pitch

organization, and a range of melodic motions. The suitability of a contour-schemes model is substantiated by its child-oriented basis. This model does not assume fixed pitches, measured intervals in scalar terms, or organized performance based on keys or melodic contours (Davidson, 1985). In addition to the contour-scheme model, the six-year study reported several findings. First, contour schemes tend to be more stable in learned songs than in spontaneous songs. This model for children's song acquisition may be useful in the study of children's development in various cultures. A second finding showed that certain songs are preferred by children in developing their musical skills. Davidson's conclusions include children's mapping of tonal space, followed by interval expansion yielding tonal frames which are used like templates in performance of both learned and spontaneous songs. Lastly, pitches become clear and fixed in their interrelationships, eventually arriving at scalar organization (Davidson, 1985).

Project Zero also sponsored a research project based on the assumption “that certain aspects of learning or development occur in much the same way, independent of the age (and sophistication) of the learner” (Davidson, McKernon, & Gardner 1985: 302). Song acquisition development was considered among three age groups: (1) children ages 1-3; (2) children ages 4 1/2 - 5 1/2; and (3) college upperclass music students. The study's focus was twofold: (1) the extent to which song acquisition reflected general developmental trends; and (2) the extent to which song acquisition occurs similarly across populations with differing ages and sophistication (Davidson *et al.*, 1985).

Consistent with related research, the Project Zero study revealed that in the first three years of life, children engage in some form of babbling or nondescript utterances which appear to possess a linguistic or pre-linguistic nature. At some point this babbling

progresses to the production of a recognizable tune. These findings (see Davidson *et al.*, 1985) suggest the following song-acquisition procedure. First, between the ages of 12 and 18 months, children experiment with nonspecific pitch inflections. Then, by 19 months, they are able to produce distinct pitches and begin to acquire rhythm patterns and melodic organizations. This beginning of spontaneous song relies heavily on major seconds and minor thirds, with occasional use of fourths and fifths. The song is further characterized by undulating contours, irregular rhythm patterns, and melodies which are neither diatonic nor based on a clear tonal center. The song is both unpredictable and unmemorable (Davidson *et al.*, 1985).

Standard or learned songs, i.e., songs that are taught by other members of the culture, are gradually assimilated by children in the same way they acquire spontaneous song. Short, fragmentary bits of song are initially incorporated into the child's spontaneous songs, and it is only by the lyrics ("E,I,E,I,O" from "Old McDonald") that the songs are recognizable to listeners (Gardner, 1981). By age two, the child begins to accommodate the properties of learned or culturally produced songs. The child's ability to understand number concepts (rhythm) and to systematically organize information (melodic contour and lyrics) leads to further song mastery. Consequently, by the end of this stage, culturally produced and spontaneous songs are distinctly separable. Musical skill development continues into the third year as the child gains mastery of song outline. Whereas early attempts to produce learned songs meant the assimilation and accommodation of song fragments pieced within the body of spontaneous song, the child now becomes able to demonstrate nearly approximate reproductions of the target songs.

Children of four and one-half years, when asked to master a target song, passed through four stages of serial acquisition identified as: (1) mastery of the song's topology by phrase; (2) mastery of the rhythmic surface; (3) mastery of the song's contour; and (4) acquisition of key stability (Davidson *et al.*, 1985). The major difference, then, between the older children's song acquisition and that of their

younger peers is the degree of accuracy with which the song is mastered. In other words, the competition between spontaneous and culturally produced songs of two-year-olds is strong, while older children's attempts to master cultural songs have modest, if any, interference from spontaneous melodies.

The three levels of mastery suggested by this Project Zero study (Davidson *et al.*, 1985) are: (1) grasp of song outline by age three; (2) mastery of song schema by age five; and (3) mastery of song acquisition processes by late adolescence. These findings, while not conclusive, provide information upon which further research can be conducted.

Additional information regarding song acquisition includes examination of the relationship of preschool children's pitch discrimination capabilities and environmental influences. In studies of infants' singing abilities, it was concluded that parents provoked spontaneous and imitative song by interacting musically with the infants (Ries, 1982). Infants as young as seven months were able to discriminate pitch differences. Consistent with other studies, as the child grew older, cultural parameters regarding harmony, tonality, and meter in singing were developed (Ries 1982). Ries's proposal that infants possess pitch discrimination abilities as early as seven months of age has startling implications for children's song acquisition, especially as it relates to cultural influences within the home.

Papousek's (1982) neonatal research also investigated the importance of preverbal parent-infant communication. Papousek refers to "baby talk" as the most relevant source of musical stimulation in the infant's daily life. Baby talk is universal in its usage; even nonsinging parents use it. Its elements include: (1) a simple structure with invitations to dialogue and warnings; (2) melodic contours more expressive than normal speech, with enhanced rhythms and word-stress; (3) a higher pitch nearer the infant's range; (4) sung rather than spoken talk with minor thirds predominating; (5) rising contours to gain attention and falling contours to calm; (6) imitative vocal play allowing for comparison of vocal production; and (7) parental use of repetitive musical patterns. Address

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(1985) characterizes these elements as gradually shifting after the first year of life into nonverbal patterns of speech and singing of spontaneous and traditional melodies. Gardner has identified the fragmentary bits and pieces of learned song as the “global properties” (Davidson *et al.*, 1981). Once children have mastered a song’s global properties, they begin to acquire songs of their culture. Parental participation during this song-acquisition stage is vital to the child’s song development. Address (1986) concurs with Davidson *et al.* (1981) regarding children’s song acquisition and asserts that in-tune singing and creative song-making can be positively shaped by adopting the developmental theory model.

#### **Birdsong and Ur-Song Theories**

Among various myths and theories surrounding children’s song acquisition are two prevalent theories, birdsong and Ur-song. By examining the song acquisition development of birds, scholars hope to derive indicators that may be used to understand human song acquisition. A number of studies have been conducted, and it appears feasible to apply birdsong acquisition principles to cognitive and symbolic systems within an individual’s cultural milieu (Gardner, 1983). Three birdsong patterns were identified in the research, of which two pertain to human song acquisition.

The first pattern, the single song of the ringdove, concurs with the idea that, regardless of location, people, or culture, all song is begun in the same basic way. Ringdoves, even when deaf, sing their unique song pattern. In the second birdsong pattern, demonstrated by canaries, deafness did interfere with the birds’ song acquisition. This pattern represents a more ethnocentric and convincing model for the development of human musical skills as it relates to other symbol systems (Gardner, 1981). In other words, the babbling stage, followed by intelligent communication of the culture, can be identified in language and art as well as music. The

study of birdsong acquisition provides “alternative models for how organisms master highly particular levels of skill through interplay of *environmental* stimulation” (italics mine) (Gardner, 1983, 46).

Ur-song is based on the belief that the first song of children is the universal chant of a descending minor third. This theory is largely propagated among Western music cultures and has garnered support from reputable experts in the fields of music, language, and psychology. If such an “Ur-song” truly exists, what is its nature? How do children acquire, develop, and expand this chant into a vast repertoire of melodies and musical creations that are disseminated and performed throughout the world? What correlations exist between this chant and musical universalities?

Many linguists and philosophers believe that a universal language was spoken by all people in the pre-Babel world. *Ur* is a German prefix meaning original, primeval. The Ur-song concept originated in the writings of nineteenth century scholars who searched for a parallel between language and song development. According to Gardner (1981), scholars theorized that a basic melody was first sung by infants and then perpetuated by hunters, fishermen, and Volga boatmen. Gardner asserts that a specific chant common to all musics is more probable than a common language since music is less associated with events and objects of a particular culture.

In 1973, Leonard Bernstein boldly embraced the Ur-song concept and characterized its melody as an archetypal intervallic scalar pattern that was repetitive and consisted of a minor third, often elaborated by a fourth. To illustrate, the calling of a person’s name, i.e., “*John-ny*,” “*Mary*,” represents the descending minor third, while the teasing challenge, “*You can’t catch me!*” adds the elaborated fourth. Typically, intervallic relationship of these three universal notes may be demonstrated by the pitches G, E, and A—pitches which Bernstein stated were “handed to us by nature on a silver platter”

(Gardner 1981, p. 70).

Bernstein's assertions were partially based on the linguistic research of Noam Chomsky, the famed linguistic scholar. One of Chomsky's theories, genetic predisposition, states that an underlying structure for human language development facilitates the learning of language (Lyons 1977, pp. 131-133). Linking genetic predisposition to the physical laws which govern music led Bernstein to his conclusions regarding the Ur-song. A strong case exists for correlating language and singing development, and Chomsky's disciples readily embraced the notion of a universal descending minor third because it supported their own ideas about language development.

Other scholars have explored the links between language and song. Kodály's pedagogical philosophy is founded on the premise that commonalities in tonal patterns and music intervals are closely related to Hungarian speech patterns. By employing the musical mother tongue (folk music), musical literacy is achieved in the same way the "mother tongue cadence" leads to language acquisition (Gottlieb, 1979). In his work with preschoolers' production of invented (spontaneous) song, Werner reported four levels of tonal knowledge, identifying the initial stage as an Ur-motif consisting of a descending third. Nettl also notes the possibility of embryonic chants from which the world's diverse musics are spawned (Gardner, 1981). At the turn of the century, Wundt's research suggested that all primitive peoples' monophonic intervals were identical to nineteenth-century Western musics' major seconds and minor thirds. He theorized that singing evolved from speech based on the duration of unwavering pitch as it became sufficiently long to be perceived and repeated.

To expound a theory or hypothesis requires fervency and personal belief. To validate it to the community of scholars requires evidence, and the Ur-song concept is not without its critics. Cultural relativists would quickly argue that the Ur-song concept is culturally biased in favor of Western cultures. A more ethnocentric explanation for song acquisition states that children's songs "reflect predominant melodic, harmonic, and rhythmic practices of *their culture*" (italics mine)

(Gardner 1981: 70). The tunes and words children repeat reflect the sounds heard in their society, not a preordained pattern. Another dissenting voice is heard from those who challenge not only the Ur-Song, but also Bernstein's ideas of universal tonality (Beckwith, 1979). Beckwith urges universalists to answer this question: "Are there any musical phenomena which you can say would be understood in the same way by persons of every culture in the world?" (p. 24). Nettl further asserts that to assume such universality is Western arrogance based on the assumptions that musical circumstances must all be the same, that music must be listened to (not played, danced to, etc.), and considers the body of Western European composed abstract art music as if it were all the music there is.

### Summary

This paper has focused on the musical sphere of learning, specifically children's song acquisition development, by exploring music universalities, song-acquisition research, and two well known song-acquisition theories. The original premise that children are the carriers of culture is fundamental to this paper. If a culture accepts that truism, then societal leadership will attend to understanding how children develop both cognitive and symbolic systems of learning and conceptualization.

In addition to culture-specific qualities, all musics consist of universalities such as the chief interval of a major second, endings which tend to descend, repetition and variation, rhythmic structure, and a person designated as the guardian of the music. Singing styles are closely related to cultural values, and some scholars believe that singing style may be linked to heredity and race, though Nettl (1990) asserts that cultural, racial, and musical boundaries do not precisely coincide.

Among the universalities found in children's musics are pitches which range from semitones to fourths and fifths, repetition, and short forms. The development of musical language among children is characterized by experimentation, exploration, and play associated with lullabies and games.

Infant song acquisition development is

“It is unwise and imprudent to suggest that all music cultures are patterned the same as Western music cultures. Despite commonalities, each music must be studied within the context of its culture.”

largely dependent on parental and cultural influences. This stage-oriented development appears to follow a contour-scheme model as observed by Davidson (1981) (see also Gardner 1983). Neonatal research concurs with Nettl's universalities of exploratory, experimental songplay resulting in spontaneous songs. Intervallic ambiguity and undefined pitches are also elements of children's song acquisition. Pitch accuracy is closely associated with physical and social maturation, as reported by Project Zero. This lends support to Davidson's proposition that song acquisition is based on a contour-scheme model rather than an interval-matching model as suggested by many Western scholars.

Perhaps no living creatures demonstrate the naturalness of singing more than birds. The birdsong theory of song acquisition, however, offers inconclusive evidence of a universal song acquisition model. The ring-dove birdsong pattern supports the idea that organisms learn a specific song regardless of environmental influences. Conversely, the canary birdsong pattern indicates that environmental influences play an integral role in the acquisition and development of a specific song. It seems this theory could be used as evidence for either school of thought regarding the importance of cultural influences in children's song acquisition.

The Ur-song theory, though loudly proclaimed by many Western scholars and musicians, appears largely unsubstantiated. While it is true that the presence of the minor third is a part of children's musics, it is not always the interval first discovered and produced, nor is it always the primary interval of song. This theory is out of step with research findings regarding stage-oriented development among children and neonatal research findings concerning cultural and parental influences on children's song acquisition and language development. It also appears to ignore the exploratory nature of children by reducing pitch reproduction to a single interval, ignoring the

experimentation within a pitch range from semitones to fourths and fifths.

There is a common weakness inherent in both of the song-acquisition theories as well as in much of the research reported in this paper. Most studies have been conducted by Western scholars in Western environments, implementing Western research designs; it is unwise to suggest that all music cultures are patterned the same as Western music cultures. Despite commonalities, each music must be studied within the context of its culture. Nettl suggests, rightly so, the use of neutral or universal tools, such as the ordinal scale, rather than strategies which are pro-Western in nature (see also Davidson, 1985). According to Nettl (1976), songs change for three reasons: (1) forgetfulness; (2) individual creativity; and (3) conformity to the song styles of the environment. At the same time, he cautions that outside Western civilizations, this tripartite model doesn't always apply.

Sufficient research has not been conducted to validate one song acquisition hypothesis more than another. Collaborative research efforts should be instigated among early childhood music educators, cognitive psychologists, and ethnomusicologists. Naturalistic as well as empirical studies are necessary to obtain a fuller understanding of this subject. This writer suggests the development of non-Western models and theories regarding children's song acquisition based on solid evidence from neonatal and cognitive research fields. More attention might also be given to children's predisposition to improvise songs through exploration and experimentation with sound.

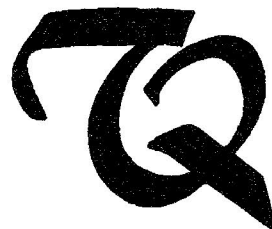
Attempts to generalize musical tendencies among all cultures on the basis of a few selected studies risks inaccuracy and cultural bias. Only after extensive research of children's music in many cultures has been conducted can hypotheses be formulated which are descriptive of world musics. If we as music educators are persuaded that children

are indeed the carriers of their musical cultures, we must discover how we can insure that the perpetuation continues for generations to come. By understanding children's learning processes, we can better know how to assist them in this learning process.

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