

the songs is established by the coordination of the methods of voice formation and the speaking rules of that particular language. According to the results of the study which in analysing the singing styles appropriate for the grammatical structure of Turkish language and studying the voice education techniques aiming at correct singing in Turkish language spoken in Turkey, there is a coordination between the aims, principles, methods of singing and speaking in Turkey. This study also points out that the voice education techniques applied in singing traditional Turkish music and school songs should be in accordance with the aim and method proper for the related music type and style.

Wendy H. Valerio (Columbia, SC)

Toddler Vocal Music Syntax Acquisition in Music Play and General Play Environments: Cultural Connections¹

Few researchers have documented the link between young children's music perception and music development. One possible link can be characterized as the time when the young children's music perception leads to the acquisition of music syntax. That is the time when young children begin acquiring music thinking skills and displaying vocal evidence of those skills. By studying music syntax acquisition, researchers may better understand music learning processes and may be better equipped to formulate interventions to enhance young children's music development.

Similar to how humans participate in language acquisition, humans may participate in music syntax acquisition. Through language acquisition humans learn to think in the language symbol system of their culture. In parallel fashion, from birth, if not before, humans are provided with many aural and oral music stimuli that are perceived through the senses, especially that of hearing. If guided, humans may acquire the ability to think music thoughts. Music thoughts, unlike language, do not comprise words. Music thoughts comprise the juxtaposition of tonal patterns and rhythm patterns in a myriad of combinations and styles. Like language thoughts, music thoughts may be communicated through informal and formal aural/oral music performance including imitation and improvisation. Before they acquire objective music syntax, young children may participate in music thought communication by using subjective music syntax through music babble.²

1 This research was made by Wendy H. Valerio, Michael A. Seaman, Ching Ching Yap, Peter M. Santucci und Ming Tu, University of South Carolina Columbia, SC. It was sponsored by The Texaco Foundation and The Presser Foundation.

2 Edwin E. Gordon, *Learning Sequences in Music: Skill, Content, and Patterns. A Music Learning Theory*, Chicago 2003.

Hicks (1993)³ and Reynolds (1995)⁴ examined guided music syntax acquisition in naturalistic situations where adult music guides (a) did not use words when presenting music, (b) encouraged infants and toddlers to use music syntax without words, and (c) omitted pitches, durations, patterns, or phrases of familiar songs or rhythm chants performed without text. The researchers found that infants and toddlers display spontaneous, kinesthetic and vocal anticipatory responses to music presented without words, but with pitch, duration, pattern, and phrase omissions. Those anticipatory responses were especially apparent when the researchers used omission techniques. Anticipation of music patterns is an initial and necessary condition for the music pattern prediction that enables humans to communicate music.⁵

The purpose of this exploratory research was to document evidence of guided music syntax acquisition among toddlers in a naturalistic environment. After coding and categorizing all toddler vocal behaviors, the specific research questions were: (a) What are the trends in toddler vocal music syntax acquisition behaviors within a 6-month period during music play and general play? and (b) How do toddlers respond vocally to adult tonal improvisation, rhythm improvisation, and music omission techniques during music play?

Methods

Participants

Two toddlers, Frank and Tony, from one intact class of 10 children at a Southeastern child development center in the United States participated in this 6-month study. At the commencement of the study, Frank was 18-months-old and Tony was 19-months-old. Those two toddlers were chosen to participate because the researchers deemed them the most musically responsive children in their class during one 15-minute music play session held prior to data collection. Frank and Tony are Caucasian males. Each is from a middle-class, two-parent family and both had been enrolled in the child development center since the age of 6-weeks.

Procedures

During the 6-month data collection period, Frank and Tony's intact toddler class participated in 32 music play and 32 general play sessions led by two of the researchers, who are also music teachers, in the toddler classroom. Each of the play sessions comprised 15 minutes of music play followed by 15 minutes of traditional general play. The order of music play and general play was switched on each consecutive session to minimize the effects of stimuli presentation order.

3 Wendy K. Hicks, *An Investigation of the Initial Stages of Preparatory Audiation*, PhD Diss. Temple University, Philadelphia 1993.

4 Alison M. Reynolds, *An Investigation of the Movement Responses Performed by Children 18 Months to Three Years of Age and their Caregivers to Rhythm Chants in Duple and Triple Meters*, PhD Diss. Temple University, Philadelphia 1995.

5 Gordon, *Learning Sequences in Music*.

Frank and Tony were videotaped continuously during each music play and general play session. One research assistant was assigned to videotape each participant. Each research assistant used a portable, digital video camera. A third stationary VHS video camera was used to record the two music teachers' stimuli presentations and to provide a timeline for each music play and general play session.

Conditions

The stimuli presented by the two music teachers during music play and general play were designed to accentuate the differences between music and language as aural/oral systems. Music play session stimuli were limited to songs, tonal pattern presentations, tonal pattern improvisation, rhythm chants, rhythm pattern presentations, rhythm pattern imitation, and rhythm improvisation. All music was performed using neutral syllables such as »bum« or »bah«, and a variety of tonalities and meters were introduced during each session⁶. Spontaneously, throughout the data collection periods the music teachers frequently employed a song and rhythm chant presentation technique developed by Hicks.⁷ When using that technique the specialists performed a song or chant with an omission of a final note, final duration, pattern, or phrase.

During the general play sessions the same two researchers who conducted the music play sessions participated in play with traditional toddler toys and manipulatives and pretend-play activities at the play centers in the classroom. To accentuate the differences between language and music, language was spoken but no music was performed by either the music teachers or the early childhood development specialists during general play sessions.

Instrumentation

Two of the researchers independently viewed all videotape recordings and created a timeline of all music activities performed by the two music teachers during each music play session. All of the researchers viewed videotape recordings of the toddlers that were recorded during a pilot phase of the project prior to formal data collection. They observed and documented all vocal behaviors, and then classified these behaviors. After training, two researchers independently viewed and coded all video recordings of Frank and Tony. A third researcher viewed and coded selected video recordings of Frank and Tony during the third month and fifth months of data collection to ensure that the coding-system reliability was maintained near or above 70 % agreement. Throughout the course of the study, the actual researcher agreement for toddler vocal behaviors ranged from 64 % to 86 %.

6 Wendy H. Valerio, Alison M. Reynolds, Beth M. Bolton, Cynthia C. Taggart, and Edwin E. Gordon, *Jump Right In: The Early Childhood Music Curriculum: Music Play*, Chicago 1998.

7 Hicks, *An Investigation of the Initial Stages*.

Results

Toddler Music and Non-Music Vocal Behavior Trends

To examine Frank's and Tony's frequency trends for music and non-music vocal behaviors, the data collection period was divided into quarters with each quarter containing eight music play sessions and eight general play sessions. Each toddler performed many more non-music vocal behaviors than music vocal behaviors, though Frank performed more non-music vocal behaviors (2.336) than did Tony (1.941). The toddlers exhibited similar non-music vocal behavior trends over the course of the study. Frank exhibited a 68 % and Tony exhibited a 56 % increase of non-music vocal behaviors from the first quarter to the fourth quarter of the study. Though the children performed nearly the same number of music vocal behaviors over the course of the study (Frank had 527 and Tony had 501 music vocalizations), their music vocal behavior trends were strikingly different. Frank exhibited a slight decrease (21 %), and Tony exhibited a great increase (388 %) of music vocal behaviors from the first quarter to the fourth quarter.

To examine vocal behaviors within music play and general play, music vocal behaviors (rhythm patterns, tonal patterns, melodic patterns, songs, and chants) were grouped together and compared with non-music vocal behaviors. Frank performed more non-music vocal behaviors than music vocal behaviors, regardless of the play session type or time period of the study. Frank also performed many more music vocal behaviors in music play sessions than in general play sessions, and the frequency of Frank's music vocalizations during music play stayed almost constant throughout the duration of the study. The number of non-music vocal behaviors Frank performed during that period fluctuated between quarters, but increased by 76 % during music play sessions and 65 % during general play sessions from the first to the fourth quarters. Moreover, Frank's music vocal behaviors during general play sessions decreased by 58 %.

Like Frank, Tony performed more non-music vocal behaviors than music vocal behaviors, regardless of the play session type or time period in the study. Unlike Frank, Tony had a marked 1,119 % increase in music vocal behaviors during music play sessions across the duration of the study. Tony also exhibited a 139 % increase of non-music vocal behaviors during music play sessions and a 31 % increase of non-music vocal behaviors during general play sessions. Similar to Frank, Tony had far more music vocal behaviors during music play than during general play sessions and his music vocal behaviors during general play decreased by 44 % during the 6-month data collection period.

Toddler Vocalizations During Improvisation and During Omission

Due to the complexity and multiplicity of toddler vocalizations performed during the music teachers' tonal and rhythm improvisation sets and songs and rhythm chants presented with omissions, music vocal behaviors and non-music vocal behaviors were grouped as »vocalizations« for comparison, respectively. The music teachers performed 181 tonal or rhythm patterns with improvisation and 465 tonal or rhythm patterns without improvisation when Frank was present. Frank responded with vocalizations to 80 (44 %) of patterns with improvisation and 148 (32 %) of the patterns that did not include improvisation. The music

teachers performed 175 tonal or rhythm patterns with improvisation and 477 tonal or rhythm patterns without improvisation when Tony was present. Tony responded with vocalizations to 69 (39%) of patterns with improvisation and 133 (28%) of the patterns that did not include improvisation. Therefore, Frank and Tony each responded with more toddler vocalizations to the music teachers' tonal patterns with improvisation and rhythm pattern with improvisation than they did to the presentation of tonal patterns and rhythm patterns without improvisation. For both toddlers the increase of response was about 12 percentage points higher with the presentation of improvised patterns than it was with tonal or rhythm patterns without improvisation.

The music teachers presented Frank with 238 songs and rhythm chants with pitch, duration, pattern, or phrase omissions and 844 songs and rhythm chants without omissions. Frank responded vocally during 111 (47%) of those songs and rhythm chants with omissions and during 223 (26%) of the songs and rhythm chants that were presented without omission. The specialists presented Tony with 246 songs and rhythm chants with pitch, duration, pattern, or phrase omissions and 838 songs and rhythm chants without omissions. Tony responded vocally to 98 (40%) of those songs and rhythm chants with omissions and to 182 (22%) of the songs and rhythm chants that were presented without omission. Therefore, Frank and Tony each responded with more vocalizations during music teachers' presentations of songs and rhythm chants with omissions than they did during songs and rhythm chants without omissions. For both toddlers the increase of response was about 18 percentage points higher with the presentation of songs and rhythm chants with omissions than it was when the songs and rhythm chants were presented without omission.

Conclusions and Discussion

Due to the exploratory study nature of this study, findings should not be generalized to a large population. Several conclusions may be made, however, about the music syntax acquisition of the toddlers who participated in this study. First, because toddlers perform music vocal behaviors that are distinctly different from other types of toddler vocal behaviors, toddlers understand the differences between the aural/oral music symbol system and other aural/oral symbols systems, including language. Adults' tonal improvisation, rhythm improvisation, and music omissions are especially salient techniques for eliciting toddler vocalizations, and are necessary for continued documentation of young children's music syntax acquisition. Consequently, music guides provided without improvisation and the use of song and rhythm chant omission techniques may not be optimal for guiding young children's music syntax acquisition. By using omission techniques, adults provide themselves with opportunities to listen to children's vocalizations and then to reinforce those vocalizations as music. With such reinforcement children can be guided to acquire the music syntax of their culture.

Because the toddlers in this study performed many more music vocal behaviors during music play than during general play, adults who guide young children's music syntax acquisition should provide those children with at least some music stimulation void of language to enhance the differences between music syntax and language. Finally, though all

young children have the potential to acquire music syntax and should receive music syntax acquisition guidance from more advanced music syntax users, each young child must not be expected acquire music in the same way or at the same rate.

Researchers should replicate this study in different early childhood environments and continue to develop music vocal behavior coding systems. Though the percentage of non-music vocal behaviors for each toddler increased over the course of the study, that trend may be due to maturation, and it may be evidence that music play activities without language do not detract from non-music vocal behavior development, including language. Researchers should also examine the effects of music improvisation and music omission techniques on music syntax acquisition among children of varying ages. Investigations of the relationships between music syntax acquisition and language acquisition among young children may allow unprecedented insight into the processes of human music thought.