

Music and children's speech development

ISSN 2657-9774; <https://doi.org/10.36534/erlj.2025.01.05>

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Abstract

The topic of this paper is the influence of music on the development of children's speech. The paper synthesizes research results regarding how music influences the development of speech and language acquisition in children, and it also provides an overview of other authors' research and ideas that emphasize the significance of musical genres designed for younger children (such as children's songs, singing games, sung and spoken rhymes, music listening games, and movement activities with music) in fostering speech and language development. Intensive speech development and language acquisition occur during the first three years of a child's life. Engaging children in musical activities is the most natural way to develop speech through music. Simple songs for children, singing games, and sung and spoken rhymes can be used to conduct musical activities with younger children. Simultaneously, engaging in games while listening to music and incorporating movement with music are ideal methods for conducting music-related activities. By singing and listening to music, we teach children to distinguish between colors and pitches and develop their sense of intonation, rhythm, meter, tempo, and dynamics, essential for speech development and language acquisition. In addition to primarily supporting the development of musical abilities, musical activities also foster the development of numerous other abilities and the acquisition of various skills, including speech development. Also, musical activities influence a child's emotional connection with the adults who organize the activities above.

Keywords: *children's speech development, singing, sung and spoken rhymes, listening to music, movement with music*

Introduction – the influence of music

Music plays a significant role in a child's development, as it not only fosters the development of musical ability but also enhances speech, language acquisition, literacy development, memory, attention, self-esteem, cooperation willingness, social skills, creativity, self-expression, spatial orientation, responsibility, organization and planning, empathy, and emotion processing (Hallam, 2010). Research has shown a connection between musical engagement and improved cognitive function, although it is important to note that these are often correlational studies that imply association, not necessarily causation. Hanna-Pladdy and Gajewski (2012) researched to determine that at least ten years of playing an instrument affects cognitive functions. Specifically, they found that musicians exhibit superior non-verbal memory, can quickly identify objects, and can work longer than non-musicians. Mansens et al. (2018) obtained similar results, finding that playing music at least once every two weeks is associated with better attention and memory. Devroop's (2012) research revealed that playing music positively impacts self-esteem, optimism, happiness, and perseverance. Costa-Giomi (2004) conducted a study on the effects of three years of piano lessons, which showed that playing affects children's self-confidence. Hudziak et al. (2014) found that playing changes motor skills and improves memory, attention, organization, planning, and emotional processing. These results suggest that musical experience has a lasting and broad impact on brain development and cognitive abilities. Additionally, Schlaug et al. (2005) note that learning music leads to lasting improvements in children's visual-spatial, language, and math skills, but more long-term studies with controlled conditions are necessary to prove direct cause-and-effect links. Musical activities also

significantly affect socio-emotional development, encouraging prosocial behavior and social skills. Numerous authors (Rabinowitch et al. 2013; Kirschner & Tomasello, 2010; Harland et al., 2000) have found in their research that children who engage in music are more willing to cooperate, help each other more in group problem-solving, i.e., they are more empathetic than children without musical education, have an increased awareness of the needs of others, better social skills, greater self-confidence, and that they express themselves more quickly and are more successful in group work. Forrai (1997) conducted a three-year longitudinal study comparing children aged six months to three years who had more or less exposure to music. The group with more musical activities improved over the other group on several variables, including initiating social contact. In her study, Jenlink (1993) concluded that school musical activities reduced adolescents' feelings of alienation, encouraged individual development, and provided better connections between the family and school. Ebie (1998) found that participating in a musical ensemble gives students a sense of personal accomplishment and gives them a sense of leadership and responsibility. Hallam (2010) also points out that music activity can improve children's self-confidence. However, only if the child has positive experiences during learning does music activity must be enjoyable and in line with the child's abilities. Teaching should create an environment that is flexible enough to support the development of creativity and self-expression. Musical activities also affect young children's emotional connections with the adults who organize them. Namely, music and dance movements in pairs or groups stimulate positive emotions among children and connections with adults because they create a positive atmosphere (Suleman et al., 2019).

The influence of music on children's speech development and language acquisition

Speech is a human sound communication shaped by the rhythm of sentences, words, and syllables (Škarić, 1986). It allows people to express their knowledge, feelings, needs, and opinions (Starc et al., 2004). Language is interpreted as a system of abstract signs realized through speech (Pavličević-Franić, 2008). Intensive speech development and language acquisition take place during the first three years of a child's life (Kovačević, 1996), i.e., speech development can be followed from birth to the appearance of the first meaningful word (preverbal period) and from the appearance of the first meaningful word (sentence) to the automation of speech (verbal period) (Starc et al., 2004). During this period, the child acquires the elements of speech, which are intonation, sentence melody, emphasis, tone color, rhythmic structures, voice nuances, loudness, tempo, and gestures (Patzalaff et al., 2012). Children use their bodies to pronounce more complex words between the ages of two and three. Between the ages of three and five, children transmit their experience of sound and voice, which involves repeating what they have heard, pronouncing consonants and vowels, connecting them, and practicing technique and speech. Children need a stimulating environment to develop speech and language acquisition, and speech disorders occur if it is not there. Therefore, adults should encourage children to develop speech and acquire language (Velički & Katarinčić, 2011). The most natural way to develop speech is achieved precisely through the use of music. According to McMullen and Saffran (2004), the organization of language and music is similar, with the phoneme serving as the basis for language and the tone as the basis for music. From the above, the child's brain undergoes the same cognitive processes during the development of speech and language acquisition, just as it does during the development of musical ability and the acquisition of musical skills. Ludke and Weinmann (2012) also underscore the significance of music in the early stages of language learning and acquisition, highlighting the close relationship between music and language because language and music learning occur in remarkably similar ways during the early years of life. Brandt et al. (2012) describe language as a special type of music. According to them, children do not actually learn language but acquire it from their environment, constantly listening to speech intentionally and unintentionally. They are exposed to speech in various aspects, intonations, rhythms, melodies, and different loudness, and they connect it intuitively with appropriate situations and contexts. Without the ability to listen and recognize musical characteristics, we would not be able to learn language. In addition

to the timbre, young children are sensitive to the rhythmic component of language (Nazzi et al., 1998). Children can also notice differences in numerous other linguistic characteristics precisely based on the musical aspects of language. Young children's attention to rhythm indicates that they absorb the sound aspects of their native language—rhythm, stress, and phonemes—in much the same way we listen to music (Ramus et al., 1999). According to Brandt et al. (2012), young children use the musical components of language (rhythm, timbre, and intonation) as a foundation and springboard for acquiring language's semantic and syntactic structures. Therefore, young children listen to the sounds of language not to understand or obtain information but to understand the meaning of words. Children are not cognitively mature enough to understand how language works and why, but they still use it correctly and, over time, only improve its application and enrich their vocabulary. Since the human brain processes music and language in very similar ways, research (Adams et al., 1998; Ericson & Juliebo, 1998) has confirmed that musical activities have an impact on the development of children's phonological awareness, which is crucial for early learning to read and write. The authors recommend integrating music into non-musical activities to encourage children's phonological awareness and advocate using rhyme, or rhyming verse, as an effective mechanism for building awareness of word meaning and associations.

Numerous studies have shown that music is the most natural way to develop speech. Degraeve (2017) found that singing words contributes to language learning and the acquisition of accents compared to just pronouncing them rhythmically or without rhythm. Bangert et al. (2006) found in their research that musicians, unlike non-musicians, have more substantial brain activity in the area associated with language and speech. Research has shown that children with musical experience are better at distinguishing speech syllables than children who do not have this experience (Hallam, 2010), which indicates the development of auditory perception through music. Hurwitz et al. (1975) conducted a study to test whether music education improves children's reading skills in the first grade of primary school. The study revealed that children who participated in a music course demonstrated significantly better reading results compared to those who did not participate in musical activities. Experts who study the effects of music believe that musical activities impact the brain's functions during language acquisition, which later leads to the successful association of words with meaning, better vocabulary acquisition, and reading comprehension. Ludke and Weinmann (2012) believe that music helps verbal memory, which is important for mastering reading comprehension (Brady, 1991). Ho, Cheung and Chan (2003) conducted a study with boys aged six to fifteen, concluding that boys with musical education significantly excelled in verbal learning and information retention. Chan, Ho and Cheung (1998) concluded that learning to play a musical instrument enhances word retention. Learning to listen is a prerequisite for learning anything (Mayesky, 1986). In their research on active listening skills, Flohr et al. (1996) concluded that exposure to musical activities in children changes and improves brain functions related to listening.

We can conclude that involving children in musical activities stimulates speech development. Therefore, our article describes types of music intended for younger children that can serve the purpose of speech development and language acquisition. These include children's songs, singing games, sung and spoken rhymes, games with listening to music, and movement with music.

Children's songs

The following factors should be considered when selecting a song for children to sing: 1) the aesthetic value of the song, 2) the appropriateness of the textual content of the song to the age of the children, 3) the appropriateness of the song's scope to the children's capabilities, 4) the melodic and rhythmic interest of the song, 5) the logical melodiousness of the song, 6) the logical connection between the melody and the lyrics of the song, 7) thematic interest, i.e., whether the song's content will arouse interest in singing, 8) the didactic applicability of the song to develop singing abilities (Radočaj-Jerković, 2017). We can conclude from the aforementioned factors that when selecting a song, we should consider its type and scope, tempo, rhythm, and tonality. Young children should primarily sing children's songs. At the same

time, children should not be sung with songs from popular music that are current hits (Šulentić Begić, 2010). Welch (2005) believes that interaction with the mother and her singing culture shapes young children's singing in early childhood, which is not surprising given the dominance of the family or home environment for early socialization (Young & Ilari, 2012).

Furthermore, when choosing a song to sing with children, kindergarten teachers should keep in mind which songs children enjoy, which will undoubtedly contribute to developing a love of singing. The range of songs should be within the range of children's voices, which for younger children is approximately c^1 to c^2 . It is necessary to sing songs in the given intonation and not in the one that suits the teacher because this intonation is too deep for children, and they will not adopt the song's melody. Children's singing apparatus will not develop without proper intonation, which cannot be made up later in life. Therefore, teachers are responsible for developing a child's singing voice (Šulentić Begić, 2010), i.e., singing ability. Exposure to a musical environment typically leads to developing an individual's singing ability. However, negative comments during childhood, especially from adults such as parents and teachers, can harm the singer's behavior and the realization of musical potential. The most common leading cause of "unsuccessful" singing is a mismatch between singing abilities and singing tasks at a certain point in childhood (Welch, 2005). Research has established that singing ability is a developmental process rather than an innate one (Atterbury, 1984; Goetze et al., 1990; Welch, 2005). Singing ability may depend on singing instruction, i.e., positive or negative feedback (Goetze et al., 1990). Therefore, the type of feedback a child receives about their singing is crucial (Svec, 2015). We must teach children to control pitch and listen to their voices when speaking and singing. If a child cannot repeat the first tone of a song, this may mean that they have not yet learned how to use their voice (Dobrota, 2002). As for the tempo and rhythm of songs, younger children should sing songs with simpler melodies and rhythms and a moderate tempo. Of course, with young children, songs should also be sung at a faster tempo, but only after they have mastered them at a slower tempo. Namely, if we start singing at a fast tempo right away, then inaccuracies in intonation, rhythm, and pronunciation may occur. When choosing songs, we should also take into account the tonality. Namely, research by Dobrota and Reić Ercegovac (2014) showed that songs in a major key are usually associated with happiness, unlike sadness, which is associated with songs composed in a minor key. Therefore, it is not surprising that Radičević and Šulentić Begić (2010) found that younger children like to sing songs in a minor key the least. However, Šulentić Begić (2010) found that for children, it is not the tonality that is crucial but rather the song's character, which is mainly influenced by the tempo of the song's performance. Namely, a faster tempo creates an impression of playfulness, which younger children prefer.

Singing songs for children contributes to the development of their singing abilities, including a sense of intonation, pitch, timbre, and melody. Additionally, it fosters the development of dynamics, rhythm, meter, and tempo, as well as musical memory and voice listening skills, all of which are essential for speech and language acquisition.

Singing games

Singing games, or more precisely, games with singing songs, are a type of game that involves movement. Every game adheres to established rules during the singing phase. This type of game should be performed exclusively without instrumental accompaniment, and the song that is sung along with the game must have all the characteristics of a good song. This implies that the physical exertion of the game necessitates a melody range smaller than the child's vocal range, and it is advisable to steer clear of songs with intricate rhythms. Every game requires specific movement skills. Singing games utilize basic movements such as walking, running, jumping, and arm movements (Manasteriotti, 1981). Manasteriotti (1981) divides musical singing games into four categories: games in a circle, games in a column, free-form games, and games of mixed forms.

Games in a circle, whether performed as a connected or disconnected circle or a carousel, make up the largest group of singing games. In this type of game, children imitate individual scenes contained in the text of a song with harmonious movements. Sometimes, a single child acts, calling on the other children in the circle to perform specific movements. Children often perform movements unrelated to the song's text, including walking in the middle or along the circle's edge, elementary dance motifs, and various rhythmic movements. Children perform games in a column by forming a line and positioning themselves next to or behind each other. The form of this game arose from the song's content. Typically, a player assumes the primary role, which may remain constant or alter as the game progresses.

Regarding movements, the emphasis is on rhythmic gait, spatial orientation in a column or line, and maintaining balance when moving from jumping to standing (Manasteriotti, 1981). Free-form games are the most complex yet also the most flexible category of games that involve singing. The performance depends on the content of the game. For example, in running chases, in the free performance of individual actions, and collective pantomime movements, a fixed form of the game would inhibit the individual creativity of the children (Manasteriotti, 1981). However, children can also perform these games in the shape of a circle or, for instance, a column. Mixed-form games combine two or more basic forms, for example, a column and a wheel, with free movements. These games use simple means of expression, such as music, movement, and words, and the content they cover refers to living beings and inanimate objects (Manasteriotti, 1981).

Games that involve singing songs contribute to various aspects of musical ability, such as the development of intonation, pitch, timbre, melody, dynamics, rhythm, meter, and tempo. They also enhance memory, coordination, and motor skills, as the movement accompanied by singing must align with the song's meter and rhythm.

Sung and spoken rhymes

The term sung and spoken rhymes is defined as a counting classification in children's play and, in a musical sense, as a children's song in which numbers play a significant role or as a song related in content to counting or sequencing (Šonje, 2000). In addition to verbal expression, children spontaneously communicate through musical expression and sung and spoken rhymes are probably the most natural way for children to express themselves musically. Sung and spoken rhymes play a ubiquitous role in children's play, assisting them in selecting games, players, and roles, determining the sequence of performances in various forms of play, and introducing them to a diverse range of content and play forms. In sung and spoken rhymes, children experience themselves in space and time about the people and things around them and the space and time of the music itself. Therefore, in a musical sense, rhymes help develop musical ability, primarily developing a sense of rhythm and time, musical memory, and a sense of intonation (Jurišić & Sam Palmić, 2002). The rhymes serve as a musical-verbal form of communication, provide a musical-emotional pleasure for children, and greatly motivate them to participate in musical activities. The rhymes are crucial in small-scale musical activities such as auditory games, movement-based games, and vocalization exercises. All children accept it because it is the most adaptable form of musical content, not just one type. It can encourage the child to engage in any activity, with the condition that some of its elements match the essential content of the activity (Jurišić & Sam Palmić, 2002).

The musical component divides rhymes into spoken and sung forms. With spoken rhymes, we develop a sense of rhythm; with sung rhymes, we also develop a sense of intonation. Since rhymes follow the rhythm of words, they develop a sense of time signatures (evenness in performance), rhythmic relationships and duration (rhythm), and tempo and its changes (speed of performance) (Milenković & Dragojević, 2009). Spoken rhymes execute the linguistic-rhythmic structure on a consistent tone or pitch from start to finish. Stringing together, or pronouncing, words in one tone makes the exact words musical, i.e., words set to music. The tones of spoken rhymes differ in duration, volume, and color but not in pitch. Spoken rhymes have a strong intellectual and musical stimulus and develop musical and speech abilities

(Jurišić & Sam Palmić, 2002). A sung rhyme consists of tones that differ in pitch but have a very pronounced rhythm. Unlike spoken rhymes, sung rhymes, with their words set to music, closely resemble a song. The melody of such a rhyme is very simple; a sung rhyme can have only two tones of different pitches in its sequence. A sung rhyme can also consist of three, and sometimes four, tones of different pitches while still representing a song. A sung rhyme is “free” and devoid of any tonal framework. Its structure is closer to the pentatonic scale. It is attractive to children because it does not contain more complex semitones for auditory perception and performance (Jurišić & Sam Palmić, 2002). Three types of rhymes relate to the text: concrete rhymes that contain meaningful text, meaningless rhymes that contain syllables with a specific rhythm, and combined rhymes that alternate between concrete and meaningless text. Rhymes primarily develop a sense of rhythm, but in addition to that, they also develop musical memory and a sense of intonation, which are key elements for speech prosody and language development. Children can use their bodies as instruments or play instruments from their musical repertoire (sticks, castanets, cymbals, rattles, triangles) and become familiar with them by using rhymes in musical activities (Manasteriotti, 1981).

From the above, it is clear that sung and spoken rhymes primarily aid in developing a sense of rhythm, meter, tempo, and intonation. They also aid in developing musical memory, motor skills, and coordination, as counting songs involves movements in harmony with the rhyme's meter or rhythm.

Games with listening to music and movement with music

An adult prepares movements to the music of their choice in advance and practices them with the children during music games and movement activities. It is also possible for children to move while listening to the music. Music games should be performed with compositions that have pronounced musical-expressive components such as rhythm, meter, and timbre since children step, jump, clap, move their hands, or use their bodies as instruments during certain parts of the composition (Šulentić Begić, 2010). Children should coordinate their movements with the rhythm (dancing, stepping) or meter (conducting, stepping) of the composition, or they can mimic the playing of a specific instrument with their movements when they appear. Of course, the educator guides all these movements and actions, assisting children in listening to and noticing the meter, rhythm, and instruments.

Given the aforementioned characteristics, games that involve listening to music and movement significantly contribute to developing a sense of rhythm, meter, and tempo, as well as enhancing coordination and motor skills. Some games also aid in the development of the ability to recognize the color of tones by observing the instruments.

Conclusion

Parents and educators should organize activities with children, such as singing, dancing, movement to music, and playing children's instruments (Thomas, 2008). This can also involve quasi-musical communication, such as parents and grandparents carrying and swinging to music or singing to children (Gembris & Davidson, 2002; Kemp & Mills, 2002). Parents can use songs, simple melodies, and rhythmic games to expose children to different sounds, words, and sentence structures in everyday life. At the same time, educators can also use music as a learning tool in kindergartens, leading musical games and activities in which children learn new words, sounds, and melodies (Marasović, 2024). All of the above musical activities can also contribute to avoiding speech difficulties that children may have, which are manifested when they arrive at school (Velički & Katarinčić, 2011).

Children's musical genres, including children's songs, singing games, sung and spoken rhymes, and games involving music and movement, aid in developing musical skills such as intonation, pitch, timbre, melody, dynamics, rhythm, meter, and tempo. They also foster the development of musical memory and the ability to listen to others' and one's own voice during singing and speech. Speech and language characteristics include tone and intonation, loudness and emphasis, timbre, spectral composition, pauses,

speech speed, rhythm, speech modulations, pronouncing vowels, facial expressions, and gestures (Škarić, 1991). We can observe that the elements of musical ability and the characteristics of speech and language almost coincide, confirming the conclusion that musical activities can aid in developing speech and language acquisition. However, adults play a crucial role in facilitating young children's initial interactions with music and should support them.

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