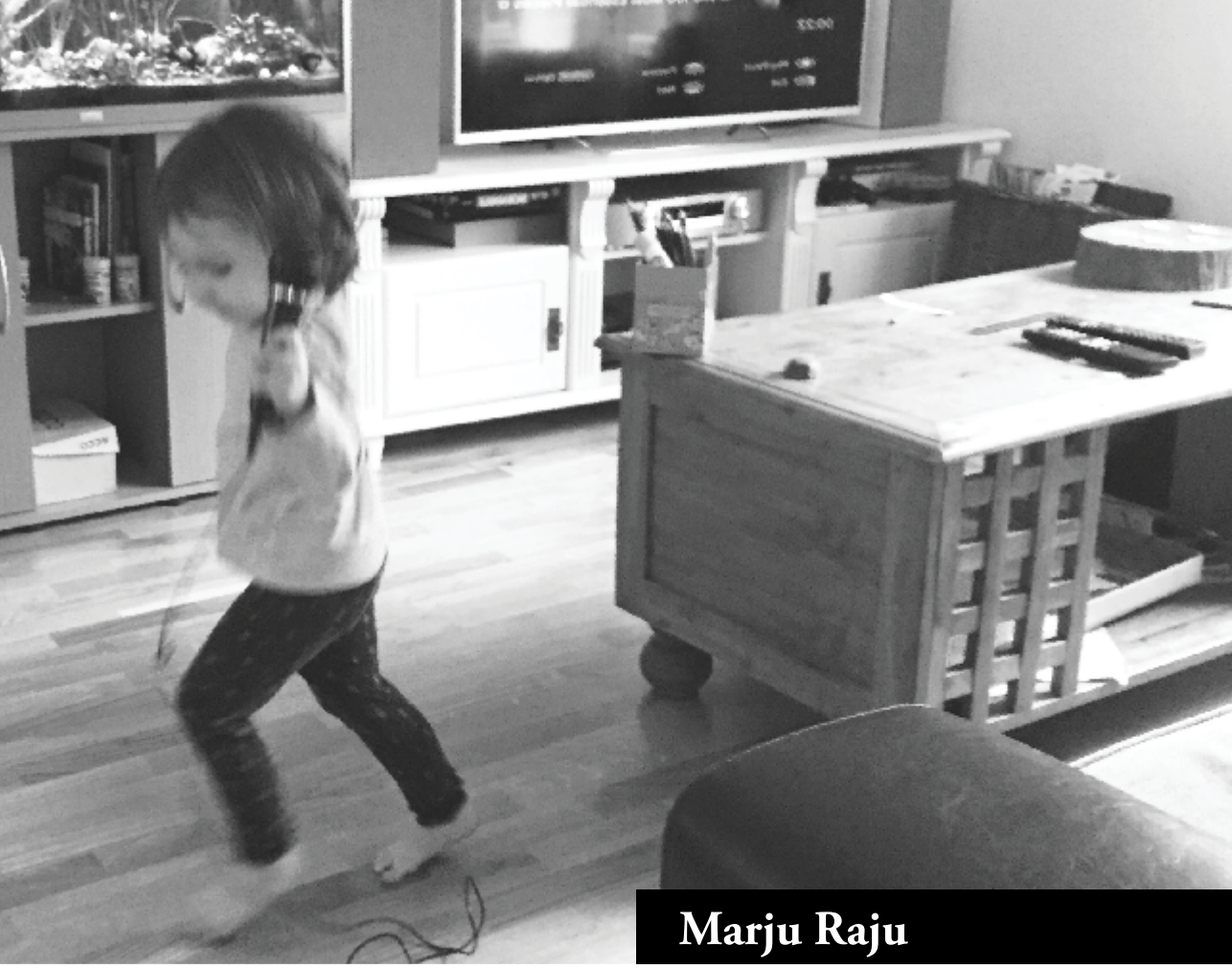

Marju Raju

Some aspects of singing development, the song creating process and favorite songs of Estonian children

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Tallinn 2015

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Mõningaid aspekte Eesti laste laulmise arengust, ise laulude loomisest ja lemmiklauludest

Eesti Muusika- ja Teatriakadeemia Väitekirjad 6
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Table of Contents

List of original publications

The dissertation is based on the following four publications (listed thematically, not in order of publication dates), which are referred to in the analytical overview by Roman numerals:

I. Raju, Marju; Ross, Jaan 2015. Sõnadest meloodiani: juhtumiuuring väikelapse laulmise arengust. [Words before melody: a case study of infant musical development] Keel ja Kirjandus [Journal of the Estonian Academy of Sciences and Estonian Writers' Union]. Vol. 58, pp. 316-332.

II. Raju, Marju; Ross, Jaan 2012. Adaption to Estonian children of the protocol for cross-cultural research in singing. Trames. Vol. 16, pp. 125-144.

III. Raju, Marju; Välja, Laura; Ross, Jaan 2015. Estonian children's improvisational songs, the nature of performance and songs' coherence with the Western tonal musical canon. Musicae Scientiae. Vol. 19, pp. 282-300.

IV. Raju, Marju; Välja, Laura; Ross, Jaan (forthcoming). How the musical culture is reflected in the choice of favorite songs of Estonian children. AIRS Book.

The articles are (re)printed with the kind permission of the respective publishers: Foundation Kultuurileht (Publication I), Estonian Academy Publishers (Publication II), SAGE Publishers (Publication III) and Dr. Annabel Cohen, director, the AIRS Book Project (Publication IV).

The author of this dissertation was fully responsible for formulating the research designs, conducting the data analysis and writing all parts of all the publications. Professor Jaan Ross was the academic adviser of this dissertation and is therefore included in the list of authors of the publications. Laura Välja, MA, collected the data under the supervision of the author of this dissertation for publications III and IV and is therefore included in the list of authors of publications III and IV.

Abstract

This doctoral dissertation "Some aspects of singing development, the song creating process and favorite songs of Estonian children" combines four previously written articles. First article is a case study on the musical development and the linguistic development of a small child (the daughter of the author). The subject of the case study was observed from birth to the 25th month of age; a more detailed analysis is provided for the period of approximately 20-25 months. The linguistic development and musical development of the child are illustrated with vocal examples of two improvisational songs and four performances of the song Põdra maja ("The big old deer") over the observation period. Three following articles are based on data that were collected with the Test Battery for Singing Skills (ATBSS), developed as part of the initiative "Advancing Interdisciplinary Research in Singing" (AIRS) in Estonia. During the piloting process, the ATBSS was administered to 26 children (17 girls and 9 boys; M_{age} = 8.4 years, age range: 4-12 years), and a second wave of data collection included 43 children (22 girls and 21 boys; M_{age} = 5.5 years, age range: 2-8 years). Given that the ATBSS includes as many as eleven vocal tasks, only three were chosen for a more thorough analysis: singing one's favorite song, ending a melody and making a song about a choice of picture. The performances for ending a melody and making a song based on a picture were analyzed using expert evaluations on the song's accordance with the Western tonal musical canon and on the spontaneity of the performance process. All of the favorite songs that the children produced were identified and categorized; and the list of songs was compared with the national curricula for music studies and also with the repertoire that, over time, has been performed in the Song Celebrations.

To conclude the research combined for this doctoral dissertation, five theses can be formulated: (1) the development of language and the development of singing are strongly related to each other, but the methodology and definitions of the main concepts may influence the results in different studies; (2) according to the linguistic connotations of the concepts laul and laulmine (song and singing) in the Estonian language, the process of song making seems to be more of a verbal than musical challenge for children; (3) the main principles of the Western tonal musical canon are acquired at an early age. There was evidence in the performance of a two-year-old child and several four-year-old children to confirm this conclusion; and (4) the Estonian musical scene and the events of our musical history are reflected in the choice of the favorite songs of Estonian children.

Abbreviations

AIRS	A major research initiative of the Social Sciences and Humanities Rsearch Council of Canada, "Advancing Interdisciplinary Research in Singing" (AIRS) aims to advance interdisciplinary research in singing through the cooperation of over 70 researchers representing every province in Canada and 15 other countries on 6 continents; www.airsplace.ca
ATBSS	Test Battery for Singing Skills developed as part of the AIRS initiative
ID	Infant-directed (speech and/ or singing)
SC	Song Celebration, *Laulupidu*
MMATools	"Music Micro Analysis Tools", a suite of tools (written in Java™) for analyzing musical and pre-musical vocal productions in the research field of singing, developed by Stefanie Stadler Elmer and Franz-Josef Elmer; www.mmatools.sourceforge.net

Foreword

I once heard a saying that a book shows even more about the author than about the topic. The publication of a doctoral dissertation is a bit different from a book, as commonly understood, but there may be a point in this saying after all, even in my case. "Everybody else sings, but Marju, you can recite a poem" was just one sentence from my kindergarten teacher that has haunted me to this day. I admit that my ability to finally carry a tune according to an acceptable minimum standard was a result of serious practice over the years, and now, I most likely qualify for amateur choral singing. However, I never forgot my sadness over not being allowed to sing with the others in that kindergarten recital nearly thirty years ago. Perhaps defending my thesis on this related topic will finally bring me a sense of peace.

I have a number of people whom I am thankful for. First and foremost, I would like to thank my supervisor, professor and academician Jaan Ross. His guidelines regarding the science (doing it must be fun) and regarding the written text (it has to be correct down to the last comma) have changed me considerably. He has encouraged me to present my findings at conferences and led the way through the rocky roads of the publishing process. I owe a great deal of gratitude to an inspirational woman, Prof. Stefanie Stadler Elmer, for discussions, numerous articles and other materials and, of course, for providing me with the analytical tools for analysis. I thank her for her courageous ideas that, initially, even intimidated me. Additionally, I am infinitely grateful to Prof. Annabel Cohen who gave us the opportunity to participate in this major collaboration project, AIRS.

I would not be defending my thesis without the beloved and still-remembered faculty head, Prof. Urve Lippus (1950-2015), who accepted me seven years ago into the master's program in musicology even though, at the time, I did not even know who Carl Dahlhaus was. I am very lucky to have so many supportive colleagues at the Estonian Academy of Music and Theatre. Thank you, Dr. Allan Vurma, Prof. Toomas Siitan, Prof. Kristel Pappel, Prof. Kerri Kotta, Dr. Anu Kõlar, Dr. Kaire Maimets-Volt and all the fellow students. I will miss the Monday afternoon seminars around the oval table.

I would like to thank all the parents and children who participated in the studies and all the teachers who helped to organize the data collection. My special thanks go to Laura Välja, who helped me with gathering the data when I was on parental leave. I am very thankful to the European Social Fund's Archimedes Foundation for the financial support that gave me the opportunities to attend and present my work at various conferences.

Last but not least, I would like to thank my family and friends. I thank my mother, who encouraged me the most to continue in my doctoral studies and, of course, for babysitting. I do not even know which words to choose to thank my daughter (I hope she will read this someday), the real "thesis baby", born and raised within the thoughts and actions included in this dissertation. My soulmate, my husband, thank you for always standing by my side and supporting me, bringing me coffee in bed after long writing nights. Thank you for being the first person to proofread every last word in every publication I have ever written.

1. Introduction

The research included in this dissertation is conducted within the framework of a major research initiative of the Social Sciences and Humanities Research Council of Canada, "Advancing Interdisciplinary Research in Singing" (AIRS), which aims to advance interdisciplinary research in singing through the cooperation of over 70 researchers representing every province in Canada and 15 other countries on six continents. Estonia is involved in the AIRS project because of its national representation as a "singing nation" and outstanding formal musical education program. Estonian data may provide an interesting input for cross-cultural research on singing. AIRS project is focused on three main themes: (1) development of singing ability; (2) singing and learning – how to teach singing and how to use singing to teach and (3) enhancement of health and well-being through singing. Estonian Academy of Music and Theatre is included in the first theme. More precisely, our involvement is related to the development and implementation of the AIRS Test Battery for singing skills (ATBSS) (Cohen et al. 2009; Cohen 2015), which will be described in detail in the Methodology section. As the significant proportion of the time of my doctoral studies was dedicated to collecting data using the ATBSS, the process itself and handling raw data files helped me to formulate specific research questions for further research that are now included to this dissertation. In addition to the studies based on the quantitative data obtained with the ATBSS, I

conducted a case-study about my daughter's musical and linguistic development. Although the case-study was conducted most recently, it is presented as first publication in this dissertation according to the logical order of the topics the publications cover.

In this following substantive introduction section, I provide a brief overview of the main topics that relate (in different extent) to all four publications brought together in this dissertation. I begin with theories about the relations of musical and linguistic development and proceed to the topic of improvisational singing. I finish the introduction with the topic of favorite songs and with a few comments on the Estonian musical soundscape and the importance of the Estonian (and Baltic) tradition of Song Celebration, Laulupidu (SC)[1]. Underlying theoretical principles in this introduction and in the publications are overlapping. Even though the title of the dissertation might give reason to believe that concepts like musicality and musical creativity will also be discussed, it has to be noted that these domains are out of scope of my analysis.

Developmental dilemma for language and singing. Although it is possible to differentiate between the specialized neural networks for processing speech and for singing, overlapping brain regions are also found that are involved in both music and language processing (Besson; Schön 2003). Särkämö et al. (2014) refer to previous neuroimaging studies on healthy subjects that have demonstrated that music processing engages a vast bilateral network of temporal, frontal, parietal, cerebellar, and limbic/paralimbic areas associated with the perception of complex acoustic features (e.g., melody and rhythm), syntactic and semantic processing, attention and working memory, episodic and semantic memory, motoric and rhythmic processing, and the experience of emotions and reward. This thorough and continuously growing list of findings demonstrates the complexity of the subject of the development of musical and singing skills. Currently, there is no consensus among scientists regarding which of these vocal communicative mechanisms – language and music – appeared first in the course of evolution and which is more crucial considering the development of the human race. The development of language is often privileged over singing as being a more important communicative mediator. The most famous quotation about hierarchal language-before-music hypotheses comes from Pinker (1997), who characterized music as an "auditory cheesecake": a delightful dessert but, from an evolutionary perspective, no more than a by-product of language. Although there are several other courageous conclusions in Pinker's works on different subjects, this particular quotation now circulates within serious academic discussions (e.g., Abbot 2002, Huron 2003, Levitin; Tirovolas 2009; Trainor;

1 The word *Laulupidu* presents some difficulties for translation into the English language. In some publications, the translation *Song Festival* is also used. In this dissertation, the same translation is used as that used by the national institution responsible for organizing the event (www.laulupidu.ee).

Hannon 2013, Coreil; Tehub; Perez 2013, and many others). Since Darwin (1871, cited by Trainor; Hannon 2013: 423) articulated the notion that music is among the most mysterious faculties of the human species, numerous studies have been conducted to "find its cause". Darwin himself suggested that music might have evolved for sexual selection. Other studies also propose other domains, such as enforcing group cohesion trough synchronized movements (Dunbar; Kaskatis; MacDonald; Barra 2012, Hove; Risen 2009; Kirschner; Tomasello 2009, 2010) and enabling a special emotional-communicative bond between infants and parents (Falk 2009; Fitch 2006, McDermaott; Hauser 2005). All of these explanations of music's evolutionary causes seem reasonable and logical, given that we can find evidence to support these findings not only in academic research but also through personal experience in everyday life when we listen to love songs on the radio and fall in love with popular singers, when we spontaneously start to sing and clap in synchrony at rock concerts, when we feel that certain oneness after joint singing or when we unconsciously raise the pitch of our voices and start to talk melodically to babies. Some of the answers regarding the evolutionary causes of music may be found by studying the vocal communication of other species (see, e.g., Patel; Demorest 2013), but much important information can be gained by studying the linguistic development and musical development of babies and young children.

When studying a child's musical development, the research focus can be either (1) on the hearing mechanism to determine what the prerequisites are to perceive different sound stimuli or (2) on the sound-producing mechanisms to study musical self-expression. The latter topic includes the ability to produce sounds and also to make sense of sounds and organize them. This ability relates also to the processes of memory, stimulation from the environment and the child's motivation to vocalize, his/her active attempts to speak or sing. In addition to the development of language skills, the first stages of a child's musical development are directly related to the child's overall development; for example, the development of voice-producing mechanisms and the ability to use one's singing voice (Rutkowski 1990), even motor control (Gruhn 2002, 2011).

There is more evidence regarding children's ability to perceive sounds compared to the ability to produce sounds because it is possible to conduct studies with babies who are only a few hours old or even with prenatal babies by observing the change in heart rate, motor responses or changes in an electroencephalogram (EEG) in response to sound stimuli (Lecanuet; Granier-Deferre; Busnel 1988; Shahidullah; Hepper 1994, cited by Trainor; Hannon 2013). Research shows that humans are born with an extremely specific and detailed ability to perceive the world of sounds (for musical development, see, e.g., the overview by Trehub 2003: 3–14; for language development, Velleman; Vihman 2006: 27). Furthermore, the cul-

tural background (the music the mother listens to during pregnancy) of the family that the baby is born into seems to influence the preference of music by neonates (Trainor; Hannon 2013: 446). Thus, it is indisputably of evolutionary importance to be "ready" not only to perceive sounds in general but also to respond to the music of one's cultural environment from the very beginning. Adults are also "ready" to vocally communicate with newborns, considering the special features of the sound perception of babies and implementing a special mode when talking to infants. The phenomenon of a special infant-directed (ID) speech, sometimes referred to as motherese or parentese, differs dramatically from the speaking mode that adults use when communicating each other. In general, ID speech features a higher pitch, expanded pitch contours, a slower speaking rate, longer vowels, a larger dynamic range, and greater rhythmicity and repetition than adult-directed speech (Trehub 2003). Similarly, ID singing is also characterized by a higher pitch and a slower tempo (Trainor et al. 1997; Trehub et al. 1997a, 1997b). Regarding the question of whether babies prefer being spoken or sung to, the findings by Corbeil, Trehub and Peretz (2013) with infants 4-13 months old show that, although babies listened to speech stimuli longer than to singing, the happy voice quality rather than the vocal mode (speaking or singing) was the principal contributor to infant attention, regardless of age. The authors discuss their results and emphasize that both ID speaking and ID singing typically also include visual and physical contact or movement for the child in a safe and familiar context; thus, it is difficult to make far-reaching conclusions only on the basis of observing reactions to vocal stimuli. Trehub and Guðmundsdóttir (2015: 2) emphasize that infants not only hear maternal singing but also see and feel the multimodal performances by their primary attachment model.

Studying babies' and young children's singing can be challenging. The question of whether there is a universal trajectory to the development of singing or whether there are critical periods in the context of the development of creative singing remains unclear, given that there seem to be data to support both hypotheses (see, e.g., Stadler Elmer 2011; Cohen 2012). Well-known and frequently cited studies (Moog 1976; Davidson; Colley 1987; Davidson; Scripp 1988; Davidson; Welch 1988; Davidson 1994) state that the ability to sing develops at approximately two years of age: first, the lyrics appear, which shape the contour of melodies and provide rhythm for the songs, and when the child grows older, the melodies becomes more recognizable and the ability to hold a key appears. This theory places language development first as a precondition for the development of singing. However, new evidence has recently emerged from case studies on children who were able to produce melodies of nursery rhymes before the appearance of spoken language (Stadler Elmer 2011; Stadler Elmer 2012a; Stadler Elmer 2012b). In the context of the evolutional hierarchy of language and music noted before, these findings seem to support the musical-origins-of-language hy-

potheses. Common sense also recognizes both possible trajectories concerning the development of language and singing. The phrase I began to sing long before I could talk is not merely a fiction by ABBA; it is heard frequently when respectable musicians, composers or actors discuss their childhood. Trehub and Guðmundsdóttir (2015: 8) add another possible scenario, stating that some toddlers may show a words-first or melody-first pattern. However, it is possible that a number of toddlers focus on lyrics in some contexts and on melody in others, depending on the song and situation.

From a scientific perspective, the conclusions regarding the musical-origins-of-language or language-before-music hypotheses are strongly embedded within definitions. If the child is too young to identify his/her vocal self-expression as singing or talking to him/herself, then parents or scholars have to make this distinction. Research (Adachi; Ando 2010; Adachi; Ding 2011; Adachi; Falk 2012; Adachi; Guðmundsdóttir 2013) has shown that the context of a baby's vocalizations influences how parents distinguish the vocalizations as either talking or singing. Additionally, the definition of song and singing may vary in different languages and cultures, influencing researchers. In the Estonian language, the word "song" (laul) does not have a specifically musical meaning, given that it is used to indicate poems in oral or written form, epic texts, or even stories that accompany singing in its narrower sense. Laul can also be used in the context of instrumental music; for example, in kindergartens, children learn to play new "songs" on musical instruments (e.g., xylophones, etc.) that do not include vocal singing at all. The meaning of the word "song" (or, more precisely, its canonical translation into Estonian) may point to at least three different things: (1) melody, (2) lyrics, or (3) both lyrics and melody.

For example, Dowling (1984, cited by Stadler Elmer 2011) defines singing only as the deliberate prolongation of vowels in his case studies. Another methodological question is raised concerning the definition of lyrics: do they have to be recognizable, meaningful words, or are merely clearly pronounced syllables sufficient? Trehub and Guðmundsdóttir (2015: 8) note, children commonly mispronounce the lyrics when singing, but the words are typically considered acceptable, even if they are barely intelligible; by contrast, melodies are not evaluated in terms of identifiability but rather by conventional adult standards that involve contour, intervals, and key stability.

Additionally, the process of data collection is critical. The method can be non-intrusive and include observations in natural settings, or the data can be gained in controlled environments using specially constructed tasks. Research with children is difficult because the child's reactions and behaviors are strongly influenced by motivation, mood and the perceived safety of the situation for the child, which includes people and the environment.

Babies and toddlers may refuse to fulfill the tasks in testing situations that they are capable of doing at home for completely different reasons. This refusal may lead to remarkable differences in reports by parents and in academic research papers on the same phenomenon. For example, in a longitudinal study on the language development of 6-24-month-old Japanese babies by Iitaka and Sano (1980: 16), the appearance of the first meaningful word was reported by mothers in some cases even six months earlier than it was observed in the laboratory. Researchers observed the children on a monthly basis in a laboratory setting where a child played and talked with his/her mother; thus, the testing situation was not actually invasive, but the environment most likely still intimidated some of the children.

To conclude this discussion on theories of the singing development, certain generalizations can be made: (1) both hypotheses regarding the sequence of language development and musical development agree that children begin to sing on average at 1.5-2 years of age; (2) the fact that the acquisition of spoken language shortly precedes or follows musical self-expression implies that those two domains are strongly developmentally linked; and (3) the method, including the definitions of the phenomenon and the process of data collection, may greatly influence the results. Zatorre (2013) demonstrates that the individual differences in the anatomical and functional properties of the neural architecture also affect learning and performance in the domains of speech and music. Therefore, it may be possible that there is actually not only one but instead several explanatory theories on musical development and language development.

Improvisational singing. After a child's ability to sing is verified, the question also shifts to the matter of "repertoire". The singing of a young child can be divided into two categories according to the nature of the songs: the attempts to reproduce known (nursery) songs and improvisational singing. Previous works on children's improvisational singing and invented songs have focused on categorizing invented songs by their function in children's lives (Moorhead; Pond 1941/1978), their content (Moog 1976), and/or the target emotion expressed through singing (Adachi; Trehub 2011). Some studies have described the developmental trajectories of invented songs (Bjørkvold 1989) or attempted to observe the song-inventing process in a specific context (Barrett 2006). In an overview article on children's improvisational singing, Barrett (2006: 203-204) concludes that, although there are several opportunities to categorize improvisational songs by their subject matter or function, the following three principles seem to describe all the results obtained in different studies: (1) the lyrics are the most important element that form the melody and rhythm of the song; (2) songs typically include elements from songs that are already known to the child; and (3) songs are used for communication or used in a special form of sing-play. The ability to vocally

improvise requires the knowledge of certain rules of musical grammar and develops from 18 months to 7 years, after which vocal improvisations typically stop; however, the implication is not that musical grammar cannot be acquired later in life (Cohen 2012). According to my logical reasoning, children stop improvisational singing most likely for other reasons, for example due to the beginning of school at approximately seven years of age. In music lessons, the focus falls more on learning to reproduce the existing repertoire rather than creating one's own music, and the process is evaluated by teachers. The fear of a "bad grade" and also the peer pressure to "be cool" can suppress the desire for improvisational singing in public.

For creative tasks, such as making up songs or composing musical pieces for an instrument, our judgment strongly relies on what we consider to be what is expected in our culture. We anticipate hearing an organization of sounds that is familiar but original. A children's song seems to be very simple in nature, but to describe it in detail, several levels of criteria must be considered. For example, Stadler Elmer (2015) has specified seven main principles and 21 rules concerning the temporal frameworks, pitches and lyrics of children's songs that apply to the German-language context. Given that Germany has had a great influence on Western musical culture, these rules concerning the temporal frameworks, pitches and lyrics of children's songs are likely to be valid for other European-language spaces, such as Estonia, and for cultures that fall under the influence of the Western tonal musical canon. Stadler Elmer (2015) notes that the lyrics and melody in a children's song are two relatively autonomous generative systems that allow infinite possibilities for song creation. The rules (the entire list is not included here) include a stable meter, an even number of measures, phrases that consist of two or four measures and that are repeated, a stable key, a somewhat small pitch range and small intervals, and notes that have two different ratios of duration. A typical children's song that illustrates this set of rules is "Brother John" (in Estonian, this song is known as Sepapoisid, which means blacksmith's "boys"), which can be determined to be a standard for children's songs in Western tonal music culture and is well known in many languages and cultures.

With regard to spontaneity, the literature claims that singing is a vital part of play for children that can "happen" without previous planning. For example, Mang (2005) describes the activities of Heidi, a three-and-half-year-old. When Heidi draws a nest with eggs, she describes her actions to a researcher by alternately talking, singing about her drawing and singing phrases from a learned song. However, singing can also be a very thoroughly premeditated process. If a person has at least an approximate vision for how the song should sound, the endeavor to perform it can be effort-consuming and even evoke reactions of bodily stress.

Some words about the Estonian musical landscape. In discussing the history and formation of Estonian art music, and musical life in general, the period of Soviet Occupation must be considered. Although all new compositions had to correspond to the theory of socialist realism and songbooks published before World War II were pronounced unfit for use, Selke's (2007) analysis of music curriculums in 1917-2002 showed, that in 1950s, there was still up to 44% of the pre-war repertoire in the songbooks used in national educational system. Many new children's songs were composed by the kindergarten teachers themselves and shared amongst colleagues (Kiilu 2010). The National Broadcast Agency produced the special television song contest Entel-tentel for children in 1968, in which a young soloist performed live with a band. A number of the songs from that TV program remain popular today. The subject matter of these songs relates strongly to the everyday life of young children, e.g., playing with a teddy bear, rocking a doll to sleep, having a bath.

Music has become one of the defining aspects of many European nations. In addition to appreciating national composers, certain songs or compositions and musical instruments, in Estonia, the activity of (joint) singing is also strongly charged with the essence of national identity. Estonians have earned the title of "singing nation" due to their tradition of Song Celebrations (SCs), a continuous tradition since 1869 that culminated in spontaneous joint singing events in 1988, now known as the Singing Revolution, which led to the regaining of Estonian independence in 1991. "Estonia sung itself to freedom" is a sentence that has even circulated in the arena of serious politics. Of course, the politically favorable situation in Russia was the main reason for Estonia's declaration of independence, but in people's minds, it was the joint singing that played the role of the romantic savior of the nation. Brokow and Brokow (2001) show the importance of the Singing Revolution as a tool for Estonia's identity marketing for both internal and external marketing: "Although the Soviet Union did not grant liberty to Estonia because Estonians sang well, the singing revolution of Estonians has contributed in important ways to promoting the social marketing goals of independence, a united national character, and the usefulness of peaceful protest within the country and abroad."

The tradition of the SC, which is of great importance for Estonians in how they define themselves and their country and due to the massive participation (the last SC in 2014 exceeded all previous attendance records, having nearly 200 000 participants together with the audience, comprising more than 10% of the Estonian population), is upheld by the high quality of music education at every level of the educational system, forming the habit of choral singing that continues throughout the lifespan. After leaving the compulsory educational system, it is very common to continue with a regular singing habit. In 2009-2010

according to Statistics Estonia, 5.2% of the adult males and 11.2% of the females of the Estonian population practiced singing at least once a week. In 2014, a total of 47 095 people were members of some singing collective (57% children, 13% adolescents, 26% adults and 4% elderly people).

Although the tradition of the SC emphasizes Estonian music, popular music in Estonia is mostly produced and listened to in English. In 2013, of the top 100 songs broadcast by the Estonian radio station Raadio Uuno, only 29% were sung in Estonian, whereas 71% were in English; songs in other languages did not make the list. These rankings included a total of only 33 Estonian bands/artists, but some of them also sung in English. Compared to the Nielsen SoundScan (USA) billboard Hot 100 songs: 2013 year-end charts, 20 songs were the same as in the Estonian rankings. Thus, we can conclude that most of the popular music heard on the radio is not Estonian in origin and that even Estonia's own popular music is frequently produced and performed in English.

Estonians value music as an important aspect of their national identity, and therefore, music education in Estonia has a long tradition. During history, several methods have been used to teach singing and other musical skills in kindergartens and schools (Selke, 2007; Kiilu, 2010). Music is integrated into the Estonian compulsory education system from basic education in kindergartens to the gymnasium level, and music teachers on every educational level are professionally trained.

Studying favorite songs. Although the discussion of favorite songs is very common, it seems to be a somewhat difficult arena for scientific research because it permits proposing research questions on several levels: is it necessary to only name one's favorite song, or does the participant have to be able to sing it as well; and if it must be sung, then what requirements have to be fulfilled to analyze the performance further? Cohen, Bailey and Nilsson (2002) asked elderly people in certain Canadian provinces (320 participants; mean age: 78 years) to name their favorite song in a questionnaire, and it proved to be a very challenging task, given that only 58% of participants gave an answer. Approximately half of the songs named were popular songs from the decades when the participants were approximately 33-35 years old (young). Other songs included religious and traditional songs, and a few examples were from classical music. In a recent study with Brazilian children in Brazil (N = 24; mean age: 7.5 years) and Latino children in the United States (N = 24; mean age: 7 years), Ilari and Habibi (2015) asked about people's favorite song and also provided a chance to sing it. Although these two comparative samples are spatially distant from each other, the results were similar. Most of the children were able to name their favorite song, only three Brazilian and six Latino children in the US stated that they do not have

one. The majority of children (76% from Brazil and 54% from the US) stated that their favorite song is a contemporary popular song. Additionally, songs from movie soundtracks and children's songs that were learned at school were noted. Of the popular songs that were noted, most were in English, not in the children's mother tongues (Portuguese and Spanish). It is noteworthy that, although most of the children reported having a favorite song, only six children from Brazil and four from the US agreed to sing them to the researchers.

Although there was no questions worded specifically about favorite songs in the population survey by Lauristin and Vihalemm (2013: 10) about Estonians attitudes toward the institution of SC, it was asked about favorite styles of music and there are no remarks in the report that respondents had a problem indicating their favorable musical style, which is probably easier task than identify (and/or sing) a certain favorite song. According to this survey, the most popular musical style[2] in Estonia is folk music (rahvalikud laulud ja pillilood) – 78% of population said they like it much or very much, followed by film music (75%), traditional Estonian choral songs (72%), pop music (71%), musicals and operettas (66%), contemporary choral songs (55%), rock music (50%), disco music (50%), ethnic music (pärimusmuusika) (49%) and jazz (39%). In the younger age group (15-19) the ranking of styles was: pop music, rock music, disco music, but also 51% of that age group likes traditional Estonian choral songs.

There is also an unpublished student research paper by Toomla (2014) that includes results about 84 children from 3rd and 7th grades (age range: 8-17 years) from elementary school and music school. Children had to listen fragments of classical music from different composers and rate them according to their liking. Also some additional information was collected, including the favorite music. The question was worded as follows: "Which kind of music do you like? Name your favorite band or singer!" Majority (86%) of children wrote an answer describing favorable style(s) and/or naming bands and singers, six children also named certain songs they like. Most popular musical styles for both 3rd and 7th graders included different genres of pop and rock music, although older students named more different musical styles and genres implying to their more advance musical taste. Film music was mentioned by several children too. Five children indicated that they favor classical music, for example opera or symphonic music. Most of the children like foreign artists who perform in English, but also several Estonian artists were named.

2 List of styles was provided and respondent had to indicate his/her agreement about liking each style on five-point Likert scale. The percentage includes estimates of "I like it" and "I like it very much".

2. Analytical overview of the empirical studies

This section briefly describes the research questions, methodology and the main results of each publication included in this dissertation. It must be noted that due to the small sample sizes, the results do not allow making statistically valid generalizations about the overall population, but they describe tendencies that could be verified (or disproved) in further studies with representative samples[3].

2.1. Methods concerning more than one publication

AIRS Test Battery for Singing Skills (ATBSS) relates to three publications (II-IV) of the dissertation. The ATBSS (Cohen et al. 2009; Cohen 2015) consists of 11 components that address the different developmental aspects of musical and vocal abilities: (1) opening a conversation; (2) determining the vocal range of the participant; (3) singing back a minor third; (4) singing/learning (if necessary) "Brother John" by phrases; (5) singing a favorite song; (6) singing back intervals, triads and scales; (7) improvising an ending to a melody;

3 The AIRS project administers the ATBSS in several other countries, and all of the collected data, including the Estonian data described in this dissertation, will be included in the Digital Library, which will allow the implementation of research designs with considerably larger samples in the future.

(8) inventing a song based on a picture; (9) singing back an unfamiliar song;(10) singing "Brother John" from memory; and (11) closing a conversation. A table adapted from the original publication by Cohen et al. (2009) consisting of a short description of all the components is included in Publication II (p. 130). The aim of Publication II was to translate the ATBSS into Estonian, adapt it to the local culture and prepare for data collection with a larger number of participants (Publication III). Given that the types of musical tasks in the test battery are generally used in music education in Estonia and are therefore familiar to children, there were no major changes made to the test battery after piloting. Some changes in the wording of the instructions were implemented to make all of the tasks as unambiguous as possible for the children. This dissertation focuses on three components of the ATBSS: component no. 5: singing a favorite song (see the detailed description in Publication IV, p. 11; component no. 7: improvising an ending to a melody (Publication III); and component no. 8: inventing a song based on a picture (see the detailed description in Publication III, pp. 284-285).

Music Micro Analysis Tools (MMATools) was used to visualize and analyze the data in Publications I and III. MMATools (Stadler Elmer; Elmer 2000) is a freeware consists of two programs: Pitch Analyzer and Notation Viewer. With the Pitch Analyzer, every syllable of the performance is measured for its duration in time, and the pitch is determined according to the well-tempered scale (A4 calibrated at 435 Hz) (Stadler Elmer; Elmer 2000: 8). This method also makes it possible to visualize unstable pitches or spoken syllables, and information about joint singing or the singing of someone other than the participant can be added by using special symbols. After the analysis of the syllables duration, pitch and stability, a DAT file consisting of that information is opened using the Notation Viewer. The output is presented on a two-dimensional graph, where the x-axis represents the time in seconds and the y-axis the syllables' pitch. Visualizations of performances made with the MMATools freeware are included in Publication I (pp. 323-326) and Publication III (pp. 292-294). The MMATools freeware is able to include important information on the analyzed sound stream, focusing on the exact pitches of the performance and the stability of the pitch, which is a nuance that is difficult to convey by traditional means of notation. The disadvantages of using MMATools are related to the time-consuming analytical process and fact that it does not allow the opportunity to use traditional methods for marking rhythm. The best option for "reading" the outputs is to listen to the audio file when visually examining the graph.

2.2 Overview of research questions, methods and main results of the publications

Publication I. The research question for the case study was worded as follows: Considering the different theoretical perspectives on the development of musical and linguistic abilities,

which trajectory does the singing development of the subject of the case study follow? The subject of this case study, Marie, is the daughter of the author of this dissertation. Musical development and linguistic development were observed from birth to the 25th month of age; a more detailed analysis is provided for the period of 20-25 months. A total of six performances (four video clips and two audio recordings) of the child's singing were analyzed in detail using MMATools. Two performances were examples of improvised singing at the ages of 20 months and 24 months. The other four were performances of a very popular children's song in Estonia of French origin, "The big old deer" (Põdra maja in Estonian), at the ages of 20, 22, 23 and 24 months. All of the performances were recorded in familiar places and situations for the child (e.g., at the dining table, while taking a bath, in a family car) with an iPhone 4 and iPhone 4S, using the built-in cameras and microphones of the smartphones.

In Marie's case, the acquisition of speech was a prerequisite for the appearance of singing. The case study revealed the following stages of the development of speaking/singing during the observation period:

1) The first sentences appear (at 19 months of age);
2) The first lyrics and phrases from known nursery rhymes appear in improvisational vocal streams (at 20 months of age);
3) The ability to sing known nursery rhymes appears. Initially, the child is only able to sing alone, but then the ability to sing together with others appears (at 21-23 months);
4) The ability to hum known melodies without lyrics appears (at 24 months); and
5) The ability to improvise original lyrics for known melodies appears (at 25 months).

The child could hum the melody of a children's song only after she had learned it together with the lyrics. Her abilities to sing children's repertoire and to vocally improvise developed in parallel. Initially, her musical self-expression appeared only on an individual level (as vocalized inner speech), whereas at 23 months of age, she started to appreciate singing as a social activity and developed an ability to sing along with others and also started to initiate such activities.

Publication II. The aim of this publication was to confirm whether the ATBSS is adaptable for the Estonian language and Estonian culture. The overall testing experience with 26 participants (17 girls and 9 boys; M_{age} = 8.4 years; age range: 4-12 years) can be considered successful. Of the eleven components of the ATBSS, components nos. 1 (opening a conversation), 2 (determining the vocal range of the participant), 3 (singing back a minor

third), 4 (singing/learning (if necessary) "Brother John" by phrases), 6 (singing back intervals, triads and scales), 9 (singing back an unfamiliar song), 10 (singing "Brother John" from memory) and 11 (closing a conversation) had a 100% success rate. Success here is defined as any verbal or musical activity, according to the nature of the task, which the participant managed to produce during the task; no result was counted as "wrong". Unsuccessful cases indicate the number of situations in which the participant did nothing in response to the researcher's guidelines. The most difficult component was test item no. 8 (inventing a song based on a picture): ten participants (38% of the sample) were unable to make a song. For item no. 7 (improvising an ending to a melody), two children did not produce anything in response. Singing one's favorite song (test item no. 5) resulted in three children who refused to sing a favorite or any other song.

Publication III. After the successful piloting experience with administrating the ATBSS as it is described in the Publication II, the test battery was used to collect data from 43 participants (22 girls and 21 boys; M_{age} = 5.5 years; age range: 2-8 years). In Publication III, only two tasks, component no. 7 (ending a melody) and component no. 8 (making a song to a picture), from the ATBSS were analyzed. The research question was: How do these improvisational songs distribute into a typology based on the songs' accordance with the Western tonal musical canon and the process of song making? For that, all performances collected with regard to component no. 7 (ending a melody) and component no. 8 (making a song to a picture) were evaluated by three experts. To that end, a special methodology (described in more detail in Publication II, pp. 286-287) was developed by the author of this dissertation and the other two authors of the publication. We were interested in the following two dimensions of the performances: (1) The songs' coherence with the Western tonal musical canon; and (2) The performance process, based on whether it was conscious and planned or spontaneous. The first dimension was evaluated using three criteria:

(1) Whether the song ended on the tonic;
(2) Whether the song had an identifiable melody; and
(3) Whether the song had identifiable regular rhythm.

For the second dimension, three criteria were used for the evaluation:

(1) Did the child take any time to think before starting to sing?
(2) Did the child comment on the composition process and/or ask clarifying questions during the process?
(3) Did the child's actions during composition include so-called security behaviors (i.e., was (s)he fidgeting, playing with hands, etc.)?

In addition to these criteria, the child's ability to carry a tune and the usage of his/her voice (speaking voice vs. singing voice) were also evaluated. Thus, there were a total of eight criteria (three for both dimensions and two additional criteria) for evaluation. All of the criteria were rated using a three-point scale, where "0" indicated that the given criterion was not present, "1" indicated that the opinion was mixed (the expert could not be certain whether the criterion was present), and "2" indicated that the given criterion was completely met. In this manner, the maximum total score for both dimensions was six. Two numbers can represent the results of the above scaling, where the first number shows the song's coherence to the Western tonal canon and the second number shows how spontaneous the performance was. For example, a result of 6 / 6 indicates that the song ended on the tonic, it had both a melody and regular rhythm, and the participant was fully aware of the compositional process. After merging the evaluations from all three experts into a single dataset, the average scores for both scales were calculated for every participant. According to the average scores, the children's performances can be divided into four categories using the following typology: Type 1 (the song does not correspond to the Western tonal musical canon and the performance is spontaneous): the average score for both scales is between 0 and 2. Type 2 (the song does not correspond to the Western tonal musical canon but the performance is thoroughly premeditated): the average score for the first scale is between 0 and 2 and the average score for the second scale is between 3 and 6. Type 3 (the song is coherent with the Western tonal musical canon and the performance is spontaneous): the average score for the first scale is between 3 and 6 and the average score for the second scale is between 0 and 2. Type 4 (the song is coherent with the Western tonal musical canon and the performance is thoroughly premeditated): the average score for both scales is between 3 and 6.

According to this typology, most of the performances fell nearly equally into the third and fourth categories, meaning that they corresponded to the Western tonal musical canon. However, for some children, the process of singing was spontaneous, whereas for other, it was premeditated and planned. Only few performances can be described as non-coherent with the Western tonal musical canon. Most of the children were consistent with their song-making strategies (conscious vs. spontaneous) during the two different improvisational tasks. For the inter-rater reliability of the evaluations by the three experts, a single-factor analysis of variance (ANOVA) was conducted using the Data Analysis package of MS Excel 2013. There were statistically significant differences at the $p < .05$ level for the evaluations of the participant's ability to carry a tune, $F(5, 102) = 4.95$, $p = .008$; for the usage of the singing voice or the speaking voice, $F(5, 60) = 8.74$, $p = .0002$; and for the existence of a melody in the improvised song, $F(6, 80) = 7.14$, $p = .001$. For the other five criteria (ending on the tonic, the existence of regular rhythm, taking time to think, making verbal comments, and

the presence of security behaviors), there were no statistically significant differences between the evaluations by the three experts (all of the results of the single-factor ANOVA are presented in Table 1 of Publication III, p. 289).

Publication IV. Considering different cultural background of the members in the AIRS project, the initial task for book chapter included also covering briefly topics related to Estonian national identity and singing. Therefore, the last publication aims to answer a question whether is it possible to observe the influences of the Estonian musical landscape and singing culture on the choice of the favorite songs of Estonian children. For this analysis, samples from Publications II and III were combined, for a total of 69 children (39 girls and 30 boys; M_{age} = 6.9 years; age range: 2-12).

The analysis of the favorite songs included the following stages:

1) All of the songs were identified by authors and release date;
2) Songs were categorized into children's songs, adult songs and other songs;
3) Songs were categorized by language;
4) The list of the songs that were collected was compared with the contents of the songbooks used in Estonian schools (grades 1-4); and
5) The list of the songs that were collected was compared with the repertoire that, over time, had been performed in the Song Celebrations.

Component 5 (favorite song) had low success rates compared to the majority of the ATBSS components. Of the 69 children, 54 (78%) were able to produce their favorite (or other) song. Most of the performances (52%, n = 28) were incomplete; children sung only one or two verses or only a chorus, in some cases, even only some fragments from the chorus. In 26 cases (48%), the song was performed in its entirety or only with some small-scale omissions. Most of the songs were unique, but there were also seven songs that had more than one performance. Of the 54 collected performances, 70% were original songs by Estonian artists, 13% of the songs were adaptions or translations into Estonian of songs originating from other cultures/languages (French, German and English), 11% were songs performed in other languages (English, Russian and French) and, for 6% the songs, the origin/language could not be identified or the song was improvised during the testing session. Fifteen songs (28%) were included in the national syllabus for music: 9 songs from the syllabus for grade 1, four songs for grade 2 and two songs for grade 5. The list of performed songs was compared to the repertoire performed over time in the SCs. In the case of 11 songs (20% of the total list), the song had been performed in the SC, and four of the songs had even been performed more than once. A total of 72% of the performances were children's songs, 19% adult songs and the remaining 9%

were so-called "other" songs (improvisational songs, a hummed theme song melody from a TV show and the tune "Happy birthday to you"). Children's songs were chosen by younger participants (average age 6.9 years), whereas adult songs were chosen by older participants (average age 8.5 years). Adult songs were chosen by girls more than by boys. Regarding their release date, the songs collected in this study can be distributed on a wide time span, from the 18th century to 2010s; however, there were no songs present from 1940s, 1950s and 1970s. The complete list of songs collected in this study is presented in Table 1 of Publication IV, pp. 22-25.

2.3. Discussion

Taking into account the results gained from different studies in the field of children's acquisition of singing skills, there seems to be evidence for different possibilities for the developmental trajectory and the age of onset for singing. Just as there is not only one possible way to learn to walk (e.g., some babies crawl first, whereas others simply stand up and start walking), there does not seem to be only one determined way to acquire the abilities to talk and sing. Given that the vast majority of the human population (with the few exceptions of children with disabilities that affect hearing and/or vocalizing) is able to express itself though words and starts singing voluntarily no later than by the age of three, the debates on the evolutionary necessity of music seem therefore redundant. It seems to me that the ability to sing is a feature so important in human life, that there are several possible developmental trajectories to ensure its effortless, fun and emotional onset in early childhood.

In my publications, when I had to define singing or decide whether the vocal product was a song by Western tonal canon standards, one criterion I relied on, was the vocal mode child used; attempts for singing were made using singing voice that is perceptibly different from using speaking voice. This approach was somewhat intuitive, as the exact parameters for singing and speaking voice were not defined. When I reflect on that experience now, I have to admit that this decision caused problems that probably could have been prevented. The new method of distributing performances into a typology according to their correspondence to the Western tonal musical canon and by the nature of process that was proposed in Publication III included expert evaluations. The inter-rater reliability test showed statistically significant differences for the evaluations of the participant's ability to carry a tune, for the usage of the singing voice or the speaking voice, and for the existence of a melody in the improvised song. These results show that the concept of pitch stability and perceived differences between the singing voice and the speaking voice are not unambiguous and certainly require specific definitions and guidelines in future studies that use the same methodology.

I resolved the question of lyrics in my publication as follows: in the Publication I, in case of the known children's songs I used the definition by Vihman and Boysson-Bardies (1991: 300, cited by Argus 2004: 26), where the spoken word by child is defined as a language unit that (1) resembles the pronunciation adults use and (2) is used in the right context. In case of improvisational singing in Publication I, I also considered non-meaningful syllables as lyrics, if they were presented with singing voice. In the Publications II and III, it was decided to treat all vocal products from children as songs, whether they resembled a song or not. Reasoning behind that decision derived from the instruction children were given before responding to tasks, where the concept of song was clearly indicated ("How this song should end?" and "Please make a song about that picture!"). So it was up to the child to solve this problem, and we were open to all possible interpretations. The beginning of the melody in component no. 7 was presented with non-meaningful syllables so that the child could concentrate only on creating the melody. This condition may cause the success rate in task no. 7 to be higher than that in task no. 8, in which the child had to create a new song based on a picture. In task no. 8, the child was only given a visual cue (a picture), and nothing was sung in advance by the researcher. Although there were a few children who did not include meaningful words in their performance, most of the children seemed to view this task as more of a verbal challenge and therefore concentrated more on the lyrics. The results of this task follow the mental conceptions of the word *laul* (song) in Estonian, which means that there were three types of vocal products: songs with a melody and lyrics (in some cases, the melody was borrowed), songs with non-meaningful syllables and "songs" that were actually poems, i.e., compositions in verse without music. These results concerning the different possibilities of interpreting the concept of singing in Estonian were similar to those of the pilot study (Publication II), which shows that, even if the research question appears to be universal, the definitions and therefore the understandings of the phenomenon are embedded in the roots of the language for both the researchers and the participants whom they are studying.

One motivator for me to conduct the case-study (Publication I), was the question about the trajectory of my child's singing development: whether it follows the language-first or melody-first hypothesis. The results confirmed the theory according to which the acquisition of language is the prerequisite for the development of singing skills. Although, by the end of the observation period, she was able to separate the melody from the original set of lyrics and perform the melodies only by humming or inventing new lyrics to them, the songs always had to be learnt as a whole first, while the learning process started with learning the lyrics.

The tasks in the ATBSS are designed to be universally applicable in the cultures/

countries where music (and formal music education) follows the principles of the Western tonal musical canon. Therefore, it was presumed that understanding and responding to the tasks did not cause problems for children in Estonia, and in general, this presumption was confirmed. The piloting process with the ATBSS (Publication II) resulted in three tasks (singing the favorite song, finishing a melody and making a song to a picture) that did not have a 100% success rate. These results caught my attention, and I decided to study these particular tasks more closely in Publications III and IV. These three tasks had lower success rates not because of the children's ability to sing instead for different reasons – uncertainty, shyness, tiredness, little motivation and the combined nature of the tasks, which entailed several cognitive modalities. All subjects were able and willing to complete the simpler tasks in which they only had to repeat the melodic intervals or scales sung to them first by the researcher, meaning that the children only had to concentrate on listening, remembering and repeating.

However, in task no. 5, in which the child was "free" to sing a favorite song, some other domains, such as the different levels of decision making and performance anxiety were involved, with the result that shyer children simply gave up. As it was stated clearly in the beginning of testing procedure, that all activities are voluntary, some children may have just had too little motivation to contribute in singing their favorite song. There were also children who were not able to sing their favorite song, for example due to poor English skills when the song was originally in English, but who were not willing to swap the song for something else to adhere to the "concept of favorite". However, comparing the results obtained in Publication IV with the previous research on the same topic (singing one's favorite song) by Ilari and Habibi (2015), Estonian children were considerably more willing to sing their favorite songs than their peers in Brazil and the United States. This result may be explained by the differences in the musical backgrounds of the samples: the studied children did not have music lessons in their curricula in either Brazil or the US, but Estonian children, on average, had two music lessons per week in kindergarten/school, and many of them also participated in extracurricular musical activities. Another explanation may be that children associate the concept of favorite song with the songs they like to listen not to necessarily perform themselves because either the ability or will. Considering the rather low success rate for this element in the ATBSS and the fact that about half of performances were incomplete in the light that the aim of this component was to collect a song or few from a participant, maybe it is not justified to start the enquiry with asking participant's favorite song. Maybe an instruction to sing a song you can should give higher success rate.

The timeline of the collected favorite songs was wide, ranging from the 18th century to the present. There are some songs present from the period of before the World War II

that indicate the continuity of Estonian musical education in the 20th century despite rapid political changes. Based on the results regarding the favorite songs of elderly individuals in which the mean age of exposure to the named favorite songs was 35 years (Cohen, Bailey and Nilsson, 2002), a hypothesis can be considered: the song preferences of the children may be strongly influenced by the favored repertoire of the parents and grandparents, which would explain why numerous songs from the 1960s popular TV chow were cited in the study.

The melody-ending task (no. 7) starts out as an easy task: the researcher sings a phrase, but then the child is "free" to finish the melody. The instruction "How should this song end?" given to the participant sets a framework of (unwritten) rules that allow producing a song that achieves the expectations of a "normal" children's song. There were only a few children whose vocal production did not resemble a song that we are expected to hear, and majority of children (even the two-year-old participant[4]) completed the task following the minimal set of rules of the Western tonal musical canon that were evaluated in the study. The typology proposed in Publication II makes it possible to describe the performances based on their accordance with the Western tonal musical canon and also based on the nature of the process in terms of spontaneity. We proposed that the observable activities that may occur before or during the singing and taking time to think before starting refer to the planning of the process ahead. Repetitive physical movements during singing may mitigate tensions and allow the child to concentrate more on planning the song and producing it as it was first imagined. However, as there were as much performances without any observable behaviors that resulted in similar outcomes (songs coherent to the Western musical canon), this link may not be so clear and needs further exploration in future studies. It may be that the influences by Western tonal canon are so strong, that children apply these "rules" automatically. Parallel can be brought from jazz improvisations: musicians do not have time to think ahead or adjust their outcome during improvisations, but they are certainly aware of the compositional rules and do not usually violate them. As there were so few songs by children that did not correspond to the Western tonality rules it is hard to draw any far-reaching conclusions. Still, all the children who produced a song for a types 1 or 2, had low scores for carrying a tune and using singing voice. This raises a question about perception and production — they might have known the rules but were just not able to sing the songs abiding them.

4 Due to the relatively small sample size, it is not possible to make any further age-related conclusions. The sample is also probably biased towards braver children (according to the parents' answers for the questionnaire sent out prior to the testing).

3. Conclusions / thesis

I have formulated four theses to conclude the studies combined in this doctoral dissertation:

I. The development of language and the development of singing are strongly related to each other, but the methodology and definitions of the main concepts may influence the results in different studies. Results gained in this dissertation seem to incline towards language-before-music hypothesis.

II. According to the linguistic connotations of the concepts *laul* and *laulmine* (song and singing) in the Estonian language, the process of song making seems to be more of a verbal challenge than a musical challenge for children.

III. The main principles of the Western tonal musical canon are acquired at an early age. There was evidence in the performance of a two-year-old child and several four-year-old children that confirms this conclusion. However, due to methodological limitations, the results are not valid for statistical generalizations to overall population.

IV. The Estonian musical scene and the events of our musical history are reflected in the choice of favorite songs of Estonian children.

4. Kokkuvõte

Marju Raju doktorikraadi kaitsmiseks esitatud dissertatsioon "Mõningaid aspekte Eesti laste laulmise arengust, ise laulude loomisest ja lemmiklauludest" põhineb neljal eelretsenseeritud artiklil. Artiklite loetelu on toodud dissertatsiooni alguses ning kõik artiklite täistekstid on väitekirjale lisatud. Doktoritöö on seotud Eesti Muusika- ja Teatriakadeemia osalemisega rahvusvahelises teadusprojektis „Laulu-alase valdkondadevahelise uurimistöö edendamine" (Advancing Interdisciplinary Research in Singing (AIRS)), mida juhitakse Kanadast ning kuhu on kaasatud üle 70 teadlase kuuelt kontinendilt. Projektis on kolm põhisuunda: (1) laulmise areng, (2) laulmine ja õppimine – kuidas õpetada laulmist ja kuidas kasutada laulmist õpetamisel ja (3) laulmisega tervise ja heaolu suurendamine. Eesti osaleb esimeses teemas, konkreetsemalt on tegevused seotud laulu ja kõne aspekte hõlmava testipaketi AIRS Test Battery of Singing Skills (ATBSS) arendamise ja rakendamisega.

Väitekirja sissejuhatavas peatükis tutvustatakse mõningaid olulisi muusikapsühholoogia teooriaid, keskendudes sealjuures laulmise arengule, mis on suuresti seotud ka inimese keelelise arenguga, ning sõnastatakse uurimisküsimused. Seejärel antakse väitekirjas ülevaade neljas artiklis kasutatud uurimismeetoditest ning tuuakse välja olulisemad tulemused. Väitekiri lõppeb üldise diskussiooniga, millest formuleeruvad olulisemad järeldused:

1. Keeleline ja muusikaline areng on omavahelises seoses, kuid uurimismeetodite valik ja mõistete defineerimine mõjutab konkreetse uurimistöö tulemusi.
2. Eesti keeles (ja sellega seoses eesti laste arusaamades) on laulmine/laulu loomine/laulu tegemine pigem verbaalne väljakutse ning meloodia näib olevat selle protsessis teisejärguline.
3. Lääne tonaalse muusika kaanoni põhiprintsiibid omandatakse varases eas. Doktoritöö raames läbi viidud uuringutes on sellekohased tõendid ühe kaheaastase ja mitmete nelja-aastaste laste kohta.
4. Laste lemmiklaulude valikus peegeldub nii Eesti praegune muusikakultuur kui ka muusikaajalugu.

Järgnevalt on toodud iga artikli lühikirjeldus. Väitekirja kaasatud **esimene artikkel** kirjeldab juhtumiuuringut ühe väikelapse muusikalisest ja keelelisest arengust. Vaatlusalune laps on väitekirja autori tütar, kelle kohta oli perekonnaarhiivi kogunenud piisavalt video- ja audiomaterjali ning ka kirjalikke märkmeid keelelise ja muusikalise arengu kohta. Juba olemasoleva videomaterjali süstemaatilise analüüsi eesmärk tulenes erinevustest laulmise arengu

teooriates: millise paradigma järgi konkreetne väikelaps areneb, kas tema laulmise arengus ilmnevad esmalt kõnelised (laulusõnad) või muusikalised elemendid (meloodia). Juhtumiuuring näitas järgmisi etappe lapse laulmise arengus:

1) üksikute sõnade/fraaside ilmumine improvisatsioonilistesse lauludesse (20-kuusena);
2) võime laulda tuttavaid lastelaule esmalt üksi, seejärel ka teistega koos (21.–23. elukuul);
3) tuttavate meloodiate ümisemine ilma sõnadeta (24-kuusena);
4) tuttavatele meloodiatele uute sõnade loomine (25-kuusena).

Juhtumiuuring näitas, et laulmisprotsessis ilmusid esmalt laulusõnad, misjärel hakkas kujunema ja täpsustuma laulu meloodiajoonis. Enne kui laps suutis ümiseda lastelaulu meloodiat, pidi ta olema selle omandanud koos laulusõnadega. Vaatlusperioodi jooksul arenes paralleelselt oskus laulda tuntud lastelaule ning improviseerida, mõelda ise laule välja. Kui esialgu oli laulmine lapse jaoks individuaalne tegevus, siis teise eluaasta alguseks soovis ja suutis ta laulda ka teistega kaasa ning hakkas tegema ise ettepanekuid koos laulda.

Teises artiklis kirjeldatakse ATBSSi kohandamist Eesti oludele ning pilootuurimuse läbiviimist 26 lapsega vanuses 4-12 aastat. Uuringu eesmärgiks oli selgitada, kas testipaketis sisalduvad ülesanded on Eestis rakendatavad, kas ja milliseid muudatusi oleks vaja teha nii sisuliselt kui ülesannete juhistesse; millises vanuserühmas sobib ATBSS kasutamiseks ning kas laste muusikaõpingud mõjutavad olulisel määral testi tulemusi. ATBSS koosneb üheteistkümnest komponendist: (1) sissejuhatav vestlus, (2) hääleulatuse määramine, (3) väikeste tertside järelelaulmine, (4) lastelaulu "Sepapoisid" laulmine (vajadusel õppimine) fraaside kaupa, (5) lemmiklaulu laulmine, (6) heliridade järele laulmine, (7) ette lauldud meloodia lõpuni laulmine (improvisatsioon), (8) pildi järgi laulu tegemine, (9) tundmatu laulu (spetsiaalselt testi jaoks komponeeritud) õppimine, (10) mälu järgi "Sepapoiste" laulu laulmine ja (11) lõpuvestlus. Kuna testipakett koosnes ülesannetest, mille taolistega puutuvad lapsed kokku ka Eesti lasteaedade ja koolide muusikatundides, siis märkimisväärseid muudatusi testipaketti ei tehtud. Ülesannete instruktsioonid ja materjalid (nt tundmatu laul) tõlgiti eesti keelde. Üldjoontes testipaketi läbitegemine uuringus osalenud lastele suuri raskusi ei valmistanud. Loomingulisemate ülesannete puhul (lemmikalulu laulmine, meloodia lõpetamine ja pildi järgi laulu tegemine) oli rohkem katseisikuid, kes mingil põhjusel ülesannet ei sooritanud. Pildi järgi laulu tegemise ülesande puhul ilmnes huvitav tulemus, nimelt jagunesid laste esitused nelja erinevasse rühma: (1) oli lapsi, kes tegid omaloomingulise laulu, kus olid nii originaalne meloodia kui ka sõnad, (2) mõeldi välja küll sõnad, kuid lauluviis laenati mõnelt tuttavalt laulult, (3) mõned lapsed laulsid juba mõnd neile tuttavat laulu, (4) laulmise asemel loeti luuletust. Sõna "laul" tähendusväli eesti keeles näib olevat laiem kui ainult laulusõnade ja meloodia kombinatsioon. Eriti kui seda sõna kasutada korralduse

vormis "Tee laul!" (mitte "Laula laulu") võib see mõne inimese jaoks tähendada pigem verbaalset väljakutset kui meloodia loomist. Sellele viitab ka mõne lapse strateegia keskenduda uute sõnade väljamõtlemisele, kuid laenata viis juba mõnelt olemasolevalt laulult. Uuringu tulemused näitasid, et formaalset haridust omandavate (lasteaias või koolis) laste jaoks oli testis osalemine lihtsam, kuna taolisi ülesandeid sisaldavad ka muusikatunnid. Uuringu üldine järeldus oli, et ATBSS sobib Eestis kasutamiseks.

Pärast esimeses artiklis kirjeldatud pilootuuringut viidi ATBSS läbi juba suurema valimiga, kuhu kuulus 43 last vanuses 2-8. **Kolmas artikkel** keskendub vaid kahele komponendile ATBSSist: ettelauldud meloodia lõpetamisele ja pildi järgi laulu tegemisele. Uuringu eesmärgiks oli süsteemselt kirjeldada laste poolt loodud improvisatsioonilisi laule, võttes arvesse nii laulude muusikalisi parameetreid kui ka laulu loomise protsessi ja laste käitumist situatsioonis. Nende kahe ülesande tulemusi hindas artikli autoritest koosnev kolmeliikmeline ekspertide kogu, kes hindas iga esituse puhul selle vastavust kahele mõõtmele: kuivõrd vastab esitus Lääne tonaalse muusika kaanonile ja kui spontaanne või planeeritud oli laulmise protsess. Lääne tonaalse muusika kaanonile vastamist hinnati kolme kriteeriumi kaudu: (1) kas esitus lõppes toonikasse, (2) kas esitusel oli olemas meloodia ja (3) kas esitusel oli rütm. Laulmise protsessi hindamisel vaadati järgmist: (1) kas laps võttis enne laulma asumist aega mõtlemiseks, (2) kas laps esitas selgitavaid küsimusi või kommenteeris oma tegevust verbaalselt ja (3) kas lapsel esines spetsiifilisi füüsilisi käitumismustreid (turvalisuskäitumised, nihelemine, kätega mängimine vmt). Lisaks hinnati veel kaht lisakriteeriumit: seda, kas laps pidas viisi, ja kas ta kasutas esituses pigem laulu- või kõnehäält. Kõiki loetletud kriteeriume sai hinnata kolmepunktisel skaalal, kus väärtus "2" tähistas nõustumist (jah, kriteerium on olemas/täidetud), "1" seda, et vaadeldav kriteerium on piiripealne (kasutati juhul, kui ekspert polnud endas kindel) ning "0" seda, et vaadeldavat kriteeriumi ei esine. Mõlema mõõtme puhul sai vastavalt kriteeriumitele antud hinnetest, arvutada koguhinde, mis maksimaalselt sai olla kuus. Maksimaalne hinne 6/6 kirjeldab seega esitust, mis vastab Lääne tonaalse muusika kaanonile (lõppeb toonikasse, olemas on nii meloodia kui rütm) ja mille esitusest võib järeldada, et protsess on teadvustatud, planeeritud (laps mõtles, küsis küsimusi, selgitas oma tegevust ja esines ka füüsilisi tegevusi, mis viitavad keskendumisele ja sisemisele mõttetööle). Analüüsi jaoks arvutati ekspertide antud hinnete põhjal iga esituse jaoks keskmised hinded ning esitused jagati seejärel nelja kategooriasse, mis moodustasid järgneva tüpoloogia:

Tüüp 1 (laul ei vasta Lääne tonaalse muusika kaanonile ja esitus on spontaanne): mõlema mõõtme keskmine hinne on 0…2 vahel.

Tüüp 2 (laul ei vasta Lääne tonaalse muusika kaanonile, kuid esituse protsess on planeeritud): esimese mõõtme keskmine hinne on 0…2 vahel ja teise mõõtme keskmine hinne 3…6 vahel.

Tüüp 3 (laul vastab Lääne tonaalse muusika kaanonile ja esituse protsess on spontaanne): esimese

mõõtme keskmine hinne on 3…6 vahel ja teise mõõtme keskmine hinne 0…2 vahel.
Tüüp 4 (laul vastab Lääne tonaalse muusika kaanonile ja esituse protsess on planeeritud): mõlema mõõtme keskmine hinne on 3…6 vahel.

Enamus analüüsitud esitusi (60) jagunes eelpoolkirjeldatud tüpoloogia kohaselt enam-vähem võrdselt kolmanda ja neljanda tüübi vahel, mis tähendab, et laulud vastasid Lääne tonaalse muusika kaanoni reeglitele, kuid mõnede laste puhul oli taoline laululoomise protsess teadvustatud ja mõnede jaoks spontaanne. Ainult kaheksat esitust saab iseloomustada tüüpide 1 ja 2 abil, ehk siis kui Lääne tonaalse muusika kaanoni reeglitele mitte vastavat. Enamus lapsi olid kahe erineva ülesande lõikes oma laululoome strateegiate (planeeritud vs. spontaanne) poolest stabiilsed. Eksperthinnangute usaldusväärsust hinnati ühefaktorilise ANOVA abil. Kolme uuritud kriteeriumi puhul leiti eksperthinnangutes statistiliselt olulisi erinevusi $p < .05$ nivool. Nendeks olid viisipidamine $F(5, 102) = 4.95$, $p = .008$, kõne- vs. lauluhääle kasutamine $F(5, 60) = 8.74$, $p = .0002$ ja meloodia olemasolu $F(6, 80) = 7.14$, $p = .001$. Ülejäänud viie kriteeriumi osas (toonikasse lõppemine, rütmi olemasolu, aja võtmine enne alustamist, verbaalsete kommentaaride esinemine ja turvalisuskäitumised) eksperthinnangute vahel statistiliselt olulisi erinevusi ei tuvastatud. Selline tulemus näitab, et helikõrguslik stabiilsus ja erinevused kõne- ja lauluhääle vahel pole ekspertide jaoks üheselt mõistetavad ning tulevikus vajaksid need aspektid üheselt mõistetavate definitsioonide lisamist uurimismetoodikasse.

Neljandas artiklis kirjeldatakse mõlema testimislainega (kokku 69 katseisikut) kogutud lemmiklaule. Kõik esitatud laulud identifitseeriti esmalt autorite ja ilmumisaasta järgi ning seejärel võrreldi laulude nimekirja riiklike õppekavu järgivate laulikute repertuaariga ja ka läbi aegade üld- ja koolinoorte laulupidude ja kavades olnud lauludega. Artikli eesmärgiks oli tutvustada Eesti muusikakultuuri ning seda mõjutavaid tegureid ning vaadelda, kas ja kuidas peegeldab seda uurimuse käigus kogutud lemmiklaulude kollektsioon. Võrreldes teiste väitekirja artiklitega on neljas artikkel rohkem teoreetilise iseloomuga ning suunatud eelkõige AIRS projekti kuuluvate eri kultuuride esindajatele eesmärgiga tutvustada ka põgusalt Eesti muusikalugu. Ülesanne laulda korralduse peale oma lemmiklaulu ei ole väga lihtne. Vaatluse all olevast 69st lapsest laulis oma lemmiklaulu 54, mis näitab võrreldes teiste ATBSSis olevate ülesannetega suuremat mittesooritajate osakaalu. Kuigi ülesande instruktsioon lubas lemmiklaulu puudumise korral laulda ka mõnda muud laulu, ei õnnestunud siiski kõiki katseisikuid laulma saada. Oli ka juhuseid, kus lapsel küll oli tema sõnul lemmiklaul olemas, kuid laulda ta seda ei osanud ning lemmiklaulu mõne muu lauluga asendama ka ei soostunud. Takistuseks osutus mõnel juhul ka see, et lemmiklaul oli inglise keeles ning lapse keeleoskus polnud piisav. Enamus lemmiklaulude esitustest ei olnud laulude täisesitused, lauldi vaid mõni salm või ainult refrään. Kogutud 54-st laulust seitsme puhul oli

esitajaid rohkem kui üks. Laulude valikus on näha muusikahariduse mõju, kuna väga paljud laulud on lasteaia või kooli muusikaõpetuse repertuaaris. Uuringu tulemusena selgus, et laste lemmiklaulud peegeldavad lisaks Eesti muusikakultuurile ka Eesti muusikalugu. Esitatud lemmiklaulude hulgas oli nii laste- kui täiskasvanute laule ning ka võõrkeelseid laule. Laule oli erinevatest ajaperioodidest alates 18. sajandist kuni 2010ndate aastateni, mis näitab Eesti muusikahariduse järjepidevust ja seda, et Eesti lastemuusikarepertuaaris on laule, mis peavad vastu ajaproovile.

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Sõnadest meloodiani: juhtumiuuring väikelapse laulmise arengust.

Keel ja Kirjandus. Vol. 58, pp. 316-332.

SÕNADEST MELOODIANI

Juhtumiuuring väikelapse laulmise arengust

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Igal suuremal muusikapsühholoogide kogunemisel puudutatakse ühe olulise teemana keele ja muusika seoseid. Konsensuslikke seisukohti küsimustes, kumb neist tekkis evolutsiooni käigus esimesena või kas inimarengu juures on olulisemal kohal keel või hoopis muusika, pole siiani saavutatud. Muusika evolutsioonilisse arengusse püütakse pilku heita näiteks ka teiste liikide uurimise kaudu, kuid väga palju olulist informatsiooni annab väikelaste uurimine.

Laste puhul on uuringutes tähelepanu all kahesuunalised püüdlused: selgitada võimalikult täpselt välja kuulmistaju iseärasused ja mehhanismid (n-ö passiivne valmidus helisid vastu võtta) ning kirjeldada võimalikult detailselt nii kõne kui ka muusikalise arengu etappe, mis sisaldab nii võimet helisid produtseerida kui ka neid mõtestada ning hõlmab lisaks tajusüsteemile ka mälu, keskkonnast tulevat stimulatsiooni ning individuaalseid erinevusi, sealhulgas motivatsiooni häälitseda ehk lapse aktiivset püüet kõnelda või laulda. Helide tajumise kohta on rohkem teada, sest passiivset võimet üksikuid helisid või helidevahelisi suhteid tajuda on võimalik uurida juba paari tunni vanustel vastsündinutel. Uuringud (vt nt ülevaadet muusikalise arengu kohta Trehub 2003: 3–14; keelelise arengu kohta Velleman, Vihman 2006: 27) tõendavad, et inimene sünnib võimega tajuda helidemaailma (nii keelt kui ka muusikalisi helisid) väga nüansirikkalt. Siiski on huvitav märkida, et kultuurilised erinevused võivad mõjutada vastsündinute muusika kuulamise eelistusi, mis viitab sellele, et võrreldes teiste meeltega on kuulmistaju saanud sünnihetkeks juba teatud edumaa (Trainor, Hannon 2013: 446). Muusikaline eneseväljendus, laulmine, on aktiivne tegevus, mille uurimine on võrreldes kuulmistajuga märkimisväärselt keerukam. Kuigi mitmete uuringute (Moog 1976; Davidson, Colley 1987; Davidson, Scripp 1988; Davidson, Welch 1988; Davidson 1994) tulemustena saab kirjeldada laulmise arengus teatud seaduspärasusi, leidub ka uurimusi, mis neid tulemusi ei kinnita. Muusikalise arengu kohta leiab tihti kirjeldusi, mis sisaldavad kitsendusi, nagu „umbes selles vanuses" ja „enamikul lastest", millest saab järeldada, et individuaalsed või keskkonnast tulenevad erinevused võivad olla märkimisväärsed. Laulmise arengu kohta on laiemalt tuntud teooria, mille kohaselt ilmuvad umbes teise eluaasta paiku esmalt laulude sõnad, mille häälduskontuurid kujundavad esmastes laulukatsetustes selle meloodiat ja rütmi; lapse vanuse kasvades muutub meloodiajoonis äratuntavamaks ning lisandub ka stabiilses helistikus püsimise püüd. Seega, sõnad edestavad meloodiat ning võiks teha järelduse, et keeleline areng on kui mitte muusikalisest arengust olulisem, siis viimasele vähemalt eelduseks.

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Samas esineb erandeid. Näiteks Stefanie Stadler Elmeri (2011) juhtumianalüüs 1 aasta ja 8 kuu vanuse tüdrukuga näitas, et laps omandas esmalt tuntud saksa lastelaulu meloodia, mida ta suutis äratuntavalt esitada, enne kui suutis laulusõnu üldse hääldada.[1] Samuti toob Stadler Elmer (2012b: 11–12) oma ülevaateartiklis välja teisigi, valdavalt kvalitatiivmeetoditega läbi viidud longitudinaaluurimusi, mis kinnitavad tema juhtumianalüüsi tulemusi ning seavad kahtluse alla paradigma, et arenguprotsessis on keele omandamine laulmise ilmumise eeltingimuseks.[2]

Nimetatud uuringud erinevad üksteisest nii uurimisküsimuste püstituse, andmete kogumise viisi kui ka katseisikute arvu poolest ning saadud tulemusi oleks õigem vaadelda kui teineteist täiendavaid, mitte tingimata vastandavaid seisukohti. Mõlema teooria ühiseks jooneks on lapse vanus (lapsed hakkavad laulma umbes 1,5–2 eluaasta vanuses) ning paratamatult ka keele omandamise fakt, mis peab siis kas eelnema või järgnema muusikalisele eneseväljendusele.

Ka uuritavaid mõisteid defineeritakse erinevalt. Meloodia produtseerimise, st viisi laulmise kohta on võimalik kasutada erinevaid lähenemisi, et seda „oskust" konkreetselt defineerida. Kõige lihtsamini on asjale lähenenud Walter Dowling (1984, tsit Stadler Elmer 2011 kaudu), kes oma tütarde laulmise arengust rääkides defineeris laulmise kui vokaalide tahtliku pikendamise, mis erines kõnes kasutatavatest vokaalidest. Tõenäoliselt ongi just katseisikute vanemad ja hooldajad õiged eksperdid eristamaks, kas lapse häälitsus võiks olla kõne või laulmise imiteerimine.

Kindlasti mängib laulmise arengu uurimisel rolli uuritavate väga noor vanus ning ka uurimise meetod, mis võib olla lihtsalt kirjeldav/vaatlev või siis testilaadne, kus püütakse uuritavale fenomenile saada vastuseid konstrueeritud ning võimalikult kontrollitud situatsioonides. Väikelapse võimete uurimine ning sealjuures objektiivsete tulemuste saamine on keerukas ettevõtmine, sest lapse käitumist mõjutavad lisaks tema oskustele ka motivatsioon, meeleolu ning olukorra turvalisus (tuttav keskkond ja inimesed). Tihtipeale keeldub väikelaps võõras keskkonnas üldse midagi tegemast või siis on nõus tegema asju, mis ei pruugi olla uurimuse eesmärgiga seotud. Laborisituatsioonis lapse võimeid uurides võib see viia kas testimise ebaõnnestumiseni või väga suurte erinevusteni laboris saadud tulemuste ja lapsevanemate lapse tavasituatsioonis käitumise raportite vahel. Näiteks Kyoko Iitaka ja Ryogoro Sano (1980: 16) longitudinaalne uurimus 6–24-kuuste jaapani väikelaste kõne arengust näitas, et emad raporteerisid lapse esimese tähendusliku sõna ilmumist mõnel juhul lausa pool aastat varem kui teadlased, kes jälgisid samu lapsi kord kuus laboritingimustes.[3] Sealjuures oli nimetatud uuringus testimisolukord laboris muudetud väga lapsesõbralikuks: laps mängis koos oma emaga mängunurgas, kus neid jälgiti kahepoolse peegli ja videokaamerate abil. M. Elizabeth Graue

[1] Oluline on ka mõiste „laulusõnad" defineerimise küsimus, sest uuritud laps kasutas laulmisel siiski silpe, kuid need ei moodustanud mõtestatud sõnu, ammugi mitte selle konkreetse lastelaulu sõnu. Artikli autoritel on olnud võimalus vestelda Stefanie Stadler Elmeriga, kes kinnitas, et tal on ka teisi dokumenteeritud analoogseid näiteid lastest, kellel domineerivad kõne-eelses arengus pigem muusikalised eneseväljendused. Publitseeritud on lisaks veel üks juhtumiuuring 14-kuuse lapse kohta (Stadler Elmer 2012a).

[2] Inglise keeles kasutatakse selle kohta ka mõistet *musical-origins-of-language hypothesis*.

[3] Iitaka ja Sano ise analüüsis sellele aspektile tähelepanu ei juhi, kuid on tulemusi koondavas tabelis vastava info välja toonud.

ja Daniel J. Walshi (1998) soovitused laste uurimiseks sisaldavad samuti tähelepanekut, et lapsed täidavad erinevaid ülesandeid palju kompetentsemalt, kui need esitatakse neile mõtestatud situatsioonis.

Kuigi eelnevalt nimetatud uuringud on keskendunud laulmisele kui üldisele oskusele, võib selle omakorda jagada kaheks: lapsele tuttavate lastelaulude omandamine ning improvisatsiooniline laulmine. Margaret S. Barrett (2006: 203–204) järeldab oma ülevaates erinevatest uurimustest laste improvisatsiooniliste laulude kohta, et kuigi laulmise kategoriseerimiseks on erinevaid võimalusi näiteks laulude sisu või funktsiooni järgi, on mõned ühised jooned, mis erinevaid lähenemisi iseloomustavad: 1) lauludes on tähtsamal kohal sõnad, mis kujundavad ka meloodiat, 2) laulud sisaldavad lapse jaoks juba tuttavate laulude elemente, 3) laule kasutatakse suhtlemisel teistega, kas oma sõnumi edastamiseks või siis spetsiaalse laulumängu vormis. Annabel J. Cohen (2012: 180) toob välja, et võime vokaalselt improviseerida eeldab teatud muusikaliste grammatikareeglite tundmist ning areneb vanusevahemikus 18 kuud kuni 7 eluaastat, misjärel spontaanne improvisatsiooniline laulmine lastel reeglina lakkab. Kuid see ei tähenda, et hilisemas vanuses ei suudaks inimene enam omandada muusikalisi reegleid, pigem lõpetavad lapsed oma improvisatsioonilised laulud mõnel muul arengulisel põhjusel.[4] Ka Cohen (2012) mainib, et improvisatsiooniliste laulude uurimisel jääb vajaka võrreldavast andmestikust, eriti nooremate laste kohta.

Lapse arengut jälgides saab erinevaid protsesse kirjeldada, jagades need tinglikult kolme rühma: 1) mida laps juba teha suudab/oskab, 2) mida ta parajasti tegema õpib, n-ö harjutab, 3) tegevused, mis ootavad teise etapi järel, mida ta suudaks teha siis, kui mingi eeldusoskus selleks on omandatud. Sellise tavaloogikaga haakub hästi Jaan Valsineri (1997) arenguteooria, mida ta on arendanud laste söömiskäitumist jälgides, kuid mille üldised printsiibid on ülekantavad ka teiste protsesside analüüsimiseks. Valsineri (1997) kohaselt saab uuritavat fenomeni (näiteks käitumist teatud situatsioonis või mõne oskuse arenemist) kirjeldada kolmest abstraktsest arengutsoonist lähtuvalt: a) vaba liikumise tsoon, b) ergutatud käitumise tsoon ja c) lähima arengu tsoon.[5] Vaba liikumise tsooni iseloomustab lapse olemasolev käitumine teatud ajal ja ruumis, tegevused, mida ta suudab läbi viia iseseisvalt ja omal algatusel. Ergutatud käitumise tsoonis on tegevused, mida laps suudab läbi viia täiskasvanu juhendamisel ning mille algatab samuti täiskasvanu. Ergutatud käitumise tsoonis suudab laps teha asju ühel kindlal viisil (nagu ette näidatud) ning ei vaidlusta talle antud juhtnööre. Lähima arengu tsooni jäävad tegevused, mida laps veel iseseisvalt teha ei suuda, kuid suudab neid näiteks teha teatud määral täiskasvanuga koos. Lähima arengu tsoonis olevaid tegevusi ei võta laps veel omaalgatuslikult ette. Tegemist on muidugi teoreetilise kontseptsiooniga, mille kohta Valsiner ka ise märgib, et eri tsoonide vahelised piirid on dünaamilised. Kui võtta aluseks teooria, mille kohaselt ilmuvad laulmise puhul esmalt sõnad, võiks püstitada hüpoteesi, et kõne/sõnade olemasolu lapse vaba liikumise tsoonis on eelduseks, et laulmine võiks tegevusena olla võimalik lähima arengu tsoonis.

[4] Spekulatsioonina võib välja tuua, et selles vanuses minnakse tavaliselt kooli, mis institutsioonina ilmselt spontaanset laulmist ei soosi, vaid keskendub pigem teatud laulurepertuaari võimalikult täpsele esitamisele. Kuid lisaks võib olla ka muid põhjuseid.

[5] Oma teooria kujundamisel nimetab Valsiner oluliste alussammastena varasemaid James Mark Baldwini, Kurt Lewini ja Lev Võgotski töid, kellelt on laenatud ka mõisted „lähima arengu tsoon" ja „vaba liikumise tsoon", mida ta on edasi arendanud (Valsiner 1997).

Meetod

Uuringu ajend ja eesmärk. Tegemist on juhtumianalüüsiga, mille eesmärgiks on kirjeldada ühe lapse muusikalise eneseväljenduse arenemist. Praegusel ajal on lapse esimese eluaasta dokumenteerimine fotode ja videotena väga levinud ja tehniliselt lihtne. Ka artikli esimesel autoril oli kogunenud mitmeid videoid oma tütre kasvamisest, mis said ajendiks käesoleva juhtumiuuringu läbiviimiseks. Juba olemasoleva videomaterjali süstemaatilise analüüsi eesmärk tulenes erinevustest eespool kirjeldatud laulmise arengu teooriates: millise paradigma järgi konkreetne väikelaps areneb, kas tema laulmise arengus ilmnevad esmalt kõnelised (laulusõnad) või muusikalised elemendid (meloodia). Samuti oli eesmärgiks vaadelda, kas ja kuidas saaks laulmise arenemise protsessi kirjeldada Valsineri (1997) arenguteooria toel.

Uuritav laps ja uurija mõju. Marie on pere ainus laps, kes kasvab eestikeelses keskkonnas. Tema füüsiline, vaimne ja sotsiaalne areng on olnud normikohane. Nii ema kui ka isa on kõrgharidusega ja tegelevad mõlemad aktiivselt muusikaga harrastaja tasemel. Marie ei käinud vaatlusperioodil lasteaias, vaid oli kodus ema või vanavanematega. Alates 13. elukuust on Marie osalenud koos emaga korra nädalas toimuvas beebide laulu- ja meisterdamisringis (beebikoolis), kus tegevus toimub umbes kümnest lapsest ja nende hooldajast koosnevas grupis. Pool tundi on sisustatud muusikalise tegevusega (laulud, tantsud, pillimäng lihtsate rütmiinstrumentidega) ja teine pool tundi käelise tegevusega (joonistamine, rebimine, liimimine). Beebikoolis osaleb Marie väga hea meelega. Kuna uurimissubjekt on artikli esimese autori tütar, võib uurimissituatsiooni pidada osalusvaatluseks, kuna vaatluspaik on nii uurija kui ka uuritava kodu. Paratamatult tekib ema ja uurija rollikonflikt. Kui uurija peaks suutma võtta subjekti suhtes võimalikult erapooletu seisukoha ning vaatluse käigus sekkuma minimaalselt või vaid võimalikult kontrollitavate parameetrite kaudu, siis arvestades fakti, et lapse ema on samaaegselt muusikateaduse doktorant, on paratamatu, et tõenäoliselt suunati ja tunnustati lapse muusikalist arengut ning edusamme tavapärasest enam, mis võisid mõjutada arenguprotsesse ja lapse motivatsiooni laulda.

Andmete kogumine. Käesoleva uuringu tarbeks kasutati juba olemasolevaid materjale, mis ei olnud kogutud konkreetseid uurimisküsimusi silmas pidades. Lisaks pereliikmete tehtud video- ja helisalvestistele kasutati ka ema peetud päevikut, kuhu on alates lapse sünnist tehtud igapäevaseid sissekandeid. Artiklis on analüüsitud kaht helisalvestist ja nelja videosalvestist kogupikkusega 3 min 33 sekundit, detailsema analüüsi jaoks on igast salvestisest valitud lühemad lõigud pikkusega 11–43 sekundit. Analüüsiks valitud salvestised on tehtud 20.–25. elukuu perioodil erinevates kodustes situatsioonides: söögilauas, vannis, voodis ja autos. Salvestamisseadmeid lapse eest ei varjatud. Video- ja helisalvestiste tegemiseks on kasutatud nutitelefonide iPhone 4 ja iPhone 4S sisseehitatud kaamerat ja mikrofoni.

Lapse keelelise arengu ülevaade artiklis on põgus ja sisaldab eelkõige sõnavara arengu osa, teistel aspektidel peatutakse vähem. Antud uuringu kontekstis oleks kohane analüüsida detailsemalt ka muid keele arengu protsesse ja tuua vastavaid dokumenteeritud näiteid, kuid tulenevalt uuringumetoodikast, kus uurimisküsimused sõnastati alles pärast vaatlusperioodi lõppu analüüsi käigus, ei ole keelenäiteid kogutud. Juhuslikult perearhiivi kogunenud

salvestised, kus laps lisaks muule tegevusele ka räägib, ei ole piisavad detailsema analüüsi läbiviimiseks ega järelduste tegemiseks. Siinkohal tuleb taas mainida uurija isiku mõju kogu uuringu protsessile: kui uurijast lapsevanem oleks olnud keeleteadlane, oleks ta tõenäoliselt pidanud oluliseks salvestada rohkem lapse kõnenäiteid, kuid antud juhul on lapse filmimisel olnud teadlik (kui ka alateadlik) fookus laulmisel ning ka päevikusse pole kõne arengu nüansse peetud vajalikuks üles märkida.

Analüüsiprogrammid. Salvestiste analüüsiks on kasutatud Stadler Elmeri ja Elmeri (2000) loodud ning vabavarana kättesaadavat kõne ja muusika mikroanalüüsi paketti, mis koosneb helianalüüsi ja noodistuse programmist ning võimaldab hästi kuvada just improvisatsioonilisi vokaalseid esitusi, mida on keeruline üles tähendada vastavalt tavanoodistuse nõuetele (kõikuvad helikõrgused, kõne- ja lauluhääle vahelduv kasutus, ebamäärane rütm). Helianalüüsi programmi osa (Pitch Analyser) võimaldab määrata iga silbi alguse- ja lõpuaja ning fikseerida selle helikõrguse (või helikõrguse muutuse silbi vältel). Sellisest informatsioonist koostatud sisendfaili (.txt) avamine noodistuse programmis (Notation Viewer) võimaldab kuvada esitust skaalal, kus horisontaalteljel on näha aeg sekundites ning vertikaalteljel helikõrguste skaala. Iga hääldatud või lauldud silp on näidatud kokkuleppelise tingmärgina esitatud helikõrgusel (või helikõrguste vahemikus). Mõne salvestise puhul, kus helikvaliteet oli kehvem, on toetava programmina helikõrguse määramiseks kasutatud ka vabavaralist Boersma ja Weeninki (2013) programmi Praat 5.3.83.

Keeleline areng

Kuna selle juhtumiuuringu fookuses on laulmise areng, on keelelise arengu aspekte puudutatud vähem detailselt. Siin artiklis on Marie rääkimise alguseks peetud võimet pidada dialoogi, vastates küsimustele kahesõnaliste lausetega, mis ilmnes 1 aasta ja 7 kuu vanuselt (19-kuuselt), ja laulmise alguseks esimesi äratuntavaid lastelaulude fragmente, mis ilmusid umbes kuu hiljem, 1 aasta ja 8 kuu vanuses (20-kuuselt).

Siin artiklis keskendutakse keelelise arengu osas vaid tähenduslikele sõnadele ning lähtutakse Marilyn May Vihmani ja Bénédicte Boysson-Bardies' (1991: 300, tsit Argus 2004: 26 kaudu) kahest teineteist täiendavast kriteeriumist, mis varaste sõnade identifitseerimisel arvestavad nii foneetilisi kui ka kontekstuaalseid parameetreid: sõna on lapse keeleüksus, mis 1) sarnaneb täiskasvanu vastava sõnaga (on seega äratuntava kujuga) ning 2) on kasutatud õiges kontekstis. Marie keeleline areng on kooskõlas Reili Arguse (2004: 27) uurimusega, mille kohaselt ilmuvad eesti keelt kõneleva lapse esimesed sõnad esimese eluaasta lõpus ning on nimetavakujulised, kuuludes enamikus pragmaatilis-leksikaalsesse klassi, millele võiks nimeks anda „lapsele olulised inimesed". Esimene „sõna" oligi Mariel *emme*, mida ta ütles esimest korda juba 6-kuuselt. Siiski saab seda „emmet" nimetada sõnaks vaid tinglikult, sest esialgu olid sõnal lapse jaoks erinevad tähendused, lisaks ema kutsumisele kasutas ta seda juhtudel, kui tundis ebamugavust, hirmu või soovis midagi enda kätte saada.[6] Esimesed tähenduslikud sõnad ilmusid 8 kuu vanuses, ning

[6] Näiteks raamatut vaadates märkis *emme* Marie jaoks soovi keerata ette uus lehekülg.

nendeks olid eesti keeles üsna keerulise häälduse*gа* *äpp* (’täpp’),[7] mida laps kasutas, osutades ema sünnimärgile, ja *pööp*, *öpp* (’nööp’), osutades mõnele nööbile. 10-kuuse Marie kohta on üles märgitud juba kaheksa tähenduslikku sõna, 12-kuuselt ka sõnapaar *kalli-kalli*. Siis saabus keelelises arengus väike seisak,[8] sest 13. elukuu kokkuvõttesse on märgitud järgmist: „sõnavara on kokku kuivanud, aga olemasolevat „emme” ja „aitäh” kasutab sihipäraselt.” Kuu aega hiljem (14-kuuselt) on päevikus märge, et uusi sõnu on kaks: *puu* ja *pa* (’palun’), aga *emme* ja *aitäh* on kasutusel mitmes olukorras/tähenduses ning laps varieerib intonatsiooni ja hääletooni vastavalt oma eesmärkidele. 14-kuuselt ilmus oluline sõna *issi*, samuti sõnad *kuku* (tähendustes ’nuku’, ’kukkuma’ ja peitusemängu osana), *aka* (’kala’), *mõmmi*, *tsu* (’kutsu’), *änku* (’jänku’). Samuti tekkis lapsel arusaam iseendast. Oma nime ta veel öelda ei suutnud, aga vastuseks küsimusele „Kus on Marie?” patsutas oma kõhtu. 15-kuuselt suutis sõnamängu „Patsu-patsu, kus on pann?” lõpus öelda *ee taa* (’ei tea’) ja sellest alates läks keeleline areng edasi väga tormiliselt. 16.–18. elukuul ilmus palju uusi sõnu ning kahe- ja kolmesõnalisi lauseid (nt *ei pissi*; *see on kuusk*). Nagu eespool tekstis mainitud, siis 19-kuuse lapse puhul olid mõlemad lapsevanemad veendunud, et nüüd „laps räägib”. Kui varasemalt nimetas laps pigem lihtsalt ruumis olevaid objekte ning mitmesõnalised fraasid olid juhuslikud, siis 19 kuu vanuselt muutusid kahe-kolmesõnalised laused tavapäraseks. 20-kuuselt hakkas Marie lisaks konkreetsetele esemetele või nähtustele kirjeldama ka abstraktseid olukordi ja tundeid. Näiteks õhtul vanni tõstes ütles: *mõnus*. 22-kuuselt hakkas ta järjest enam kasutama mina-vormi, algul paralleelselt rääkides endast ka kolmandas isikus.[9] Lapse kõnenäidete kohta selles vanuses on üles märgitud laused, nagu *tule mulle appi* ja *ma ei taha pissile*. 23-kuuselt hakkas Marie kõnega mängima, hakates kõnelemisprotsessist teadlik olles välja mõtlema uusi sõnu, sõnapaare, mis baseerusid mõnel tuttaval sõnal või silbil (nt *aka-aka-pika-päka-pikk*; *emme-kuka-kapa-kapp*), mis tegid talle endale palju nalja. Lisaks tulid selles vanuses jõuliselt tagasi kriiskamine, hõiked ja kilked, mis domineerisid kõne-eelsel ajal (6–8 kuu vanuses), kuid nüüd oli see juba teadlik eneseväljendamise valik, mida ta ise kommenteeris: *Mis sa kilkad! Maiie kajus natuke* või kaasates ka teisi: *Emme, teeme kõõget häält*.[10]

Reeglina vaataski raamatuid temaga ema, kuid sama käsklust *emme* kasutas ta lehepööramise soovi korral ka isa, vanaema ja tädiga.

[7] Siin ja edaspidi on lapse sõnade hääldus toodud kursiivkirjas. Kui hääldus e põhjal võib jääda sõna tähendus ebaselgeks või laps ei kasuta sõna (ainult) selle korrektses tähenduses, on sulgudes lisatud sõna õige kirjapilt.

[8] Sellel perioodil toimub aktiivsem füüsiline areng, laps hakkas esmalt liikuma põlvili, seejärel mänguautot või väikest taburetti enda ees lükates. Iseseisvalt kõndima hakkas 14-kuuselt. Nagu edasisest kirjeldusest näha, läheb pärast kõndima hakkamist keeleline areng väga tempokalt edasi.

[9] Uurimisperioodi lõpus, 25-kuuselt rääkis laps umbes 80 % mina-vormis. Tungivaid soove avaldas esimest korda mina-vormis, mida kinnitas, korrates palvet ka kolmandas isikus, nt *Mina tahan jäätist! Mina tahan jäätist! Maiie tahab jäätist*.

[10] Hääliku /r/ jättis laps sõnades tavaliselt vahele või asendas häälikuga /v/. Häälikut /l/ hakkas Marie /r/-i asemel kasutama alles palju hiljem, umbes 2 aasta ja 6 kuu vanusena. Artikli kirjutamise ajal oli laps 2 aastat ja 7 kuud vana ning /r/-häälikut veel öelda ei suutnud.

Muusikaline eneseväljendus

Muusikaline eneseväljendus algas Mariel läbi keha. Tinglikult võiks öelda, et esimeseks muusikaliseks väljenduseks oli tants. Rütmilisi tantsulisi liigutusi (keha edasi-tagasi kõigutamine) tegi ta muusikast ajendatuna kohe, kui suutis oma keha kontrollida, end käpukile ajada (6-kuusena). Ka Helmut Moogi (1976, tsit Hallam 2006: 33 kaudu) uurimused märgivad, et umbes 6 kuu vanused imikud suudavad reageerida muusikale rütmilise kiikumisega. Kui Marie suutis end 9-kuuselt toe najal püsti ajada, nõksutas ta millegi toel seistes muusikat kuuldes põlvi ning kõigutas põrandal põlvili istudes ülakeha muusika saatel edasi-tagasi. 11-kuuselt on päevikus märge, et „muusikat kuulates häälitseb valjult". Kui laps suutis 14-kuuselt juba iseseisvalt seista ja kõndida, lisandusid tantsuliigutustele kätega vehklemine ning keha hakkas lisaks külgliikumisele liikuma ka vertikaalsel suunal (nõtkutas põlvi). Siiski ei lähtunud sellised „tantsud" muusika rütmist. Mõnikord juhtus, et lapse sisemise kõikumise ja muusika rütm kattusid, kuid teadlikult ta enda liigutusi muusika taktis ei sünkroniseerinud. Kuid selline olukord on täiesti normaalne. Nagu ka Aniruddh Patel (2008) märgib, on üsna tähelepanuväärne see, et hoolimata lastelaulude rütmikusest ja sellest, et beebisid kussutatakse kuude kaupa muusika saatel rütmiliselt magama, ei suuda enamik lapsi oma keha liikumist muusika rütmiga sünkroniseerida reeglina lausa enne neljandat eluaastat. See omakorda ei tähenda, et väikelastel puuduks enne neljandat eluaastat võime rütme eristada – vastupidi, juba paaripäevased vastsündinud suudavad tajuda rütmimuutusi ning paarikuuselt hakkavad beebid eelistama oma kultuuriruumile omase rütmiga muusikat (Trainor, Hannon 2013: 443–445).

Laulmise alguseks on käesolevas artiklis loetud hetke, mil Marie vokaalsesse eneseväljendusse ilmusid 1 aasta ja 8 kuu vanuses (20. elukuul) esimesed äratuntavad fragmendid lastelauludest.[11] Jälgides Marie laulmise arengut 20.–25. elukuul, on näha, kuidas igakuiselt arenevad lapse võimed nii laulu produtseerimise kui ka laulmise kui sotsiaalse tegevuse teadvustamise osas. Areng liikus mööda järgmist seaduspära:

1) üksikute sõnade/fraaside ilmumine improvisatsioonilistesse lauludesse (20-kuusena);

2) võime laulda tuttavaid lastelaule esmalt üksi, seejärel ka teistega koos (21.–23. elukuul);

3) tuttavate meloodiate ümisemine ilma sõnadeta (24-kuusena);

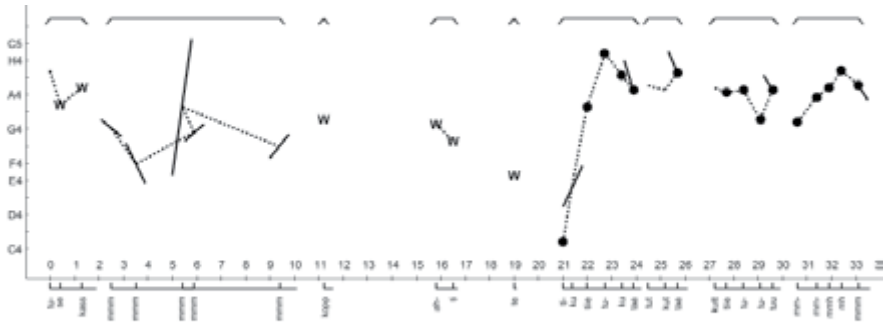
4) tuttavatele meloodiatele uute sõnade loomine (25-kuusena).

Järgnevalt kirjeldatakse iga nimetatud etappi lähemalt koos näidetega. Ühe aasta ja 8 kuu vanuses (20. elukuul) ilmusid esimesed äratuntavad fragmendid lastelauludest[12] nagu „Põdra maja" (*kopp, 'hti tee*), „Rongisõit" (*tuhh-tuhh-tuhh*),

[11] 17-kuuse lapse kohta on märge, et kuuldes CD-plaadilt laulu „Muki on koerake", ütles *auh!*, ja „Karumõmmi unelaulu" ajal *mõmm-mõmm*. Ei saa eitada fakti, et konkreetsed laulud sisaldavad neid sõnu loomahäälte imiteerimiseks, kuid konteksti jälgides oli tegemist siiski laulu tegelaste nimetamise, mitte laulusõnade esitamisega. Laps tegi loomahääli tavaliselt juba laulu eelmängu ajal või pärast laulu lõppu, laulu ennast kuulas reeglina vaikselt ega häälitsenud kaasa.

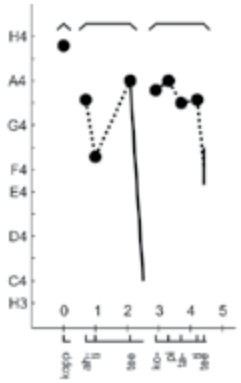
[12] Laulu pealkirja järel on sulgudes toodud 1 aasta ja 8 kuu vanuses ilmunud laulusõnad. Nagu näha, algas tuttavate laulude järgilaulmine pigem refrääänidest ning laulu jooksul korduvatest lihtsatest mingit heli matkivatest silpidest kui tähenduslikest sõnadest.

„Kriipsu Kaarel" (*kiips-kaaps, kiibus-kaabus*). Enamikul juhtudest laulis laps omaette mängides või näiteks üksi voodis olles ja und oodates. Laulmine koosnes pikkadest seeriatest, kus vaheldumisi kõne- ja lauluhäält ning „kriiskamist" kasutades järjestab laps erinevaid silpe ning ükskuid sõnu. Sellistesse seeriatesse hakkasidki ilmuma lastelauludest tuttavad fragmendid, mida ta võis improviseerimisepisoodi käigus esitada nii laulu- kui ka kõnehäälega. Üks selline näide on toodud joonisel 1, kus 20-kuune laps laulab voodis enne lõunauinakut, voodis on ka nukk ja mängujänes. Esitusest on näidatud vaid 33 sekundi pikkune fragment, kogu salvestis oli umbes poole pikem ning salvestamise alguses oli improvisatsioon juba mõnda aega kestnud. Salvestamise lõppedes tegi laps pikema pausi, kuid jätkas analoogselt veel üle 10 minuti. Improvisatsiooni kirjeldus: *usle kass* (ütleb need kaks sõna); *mmm* (pikk *glissando* alla ja üles sellel häälikul); *kopp ahti te* (ütleb need sõnad); *tikutiie tuku taa tiku taa tikutiie tiku ta tut tuu, mmm* (esitab silbid lauluhäälega tõusva meloodiaga); (pikk paus, joonisel toodud osa lõpp); *jänku tiie tet änkutiie unkutaa* (esitab silbid lauluhäälega); *nukk* (ütleb sõna); *nuku nukuuu eise teise* (esitab silbid lauluhäälega). Improvisatsiooni ajal kõlanud fraasikest lastelaulust „Põdra maja" (*kopp ahti te*) esitas laps pigem kõne- kui lauluhäälega, mida märgib joonisel 1 kõnet tähistav tingmärk W. Edasine *tikutiie*…. on selgelt meloodilisem.



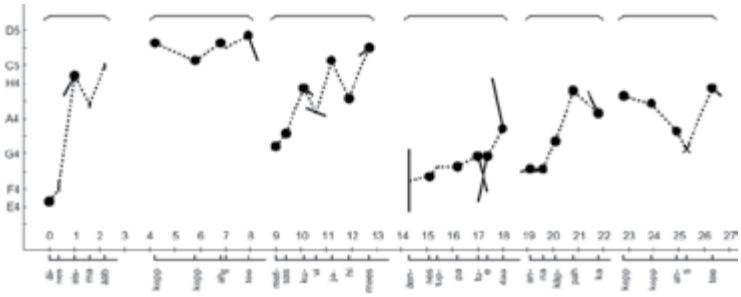
J o o n i s 1. Improvisatsioon 20-kuuselt. Horisontaalteljel on näha aeg sekundites ja lauldud silbid. Vertikaalteljel on helikõrguste skaala. Tingmärgid: täpp – stabiilne helikõrgus; sabaga täpp – helikõrguse algus stabiilne, siis toimub helikõrguse vajumine joone pikkuses (või vastupidi *glissando*'ga jõutakse stabiilse helikõrguseni); vertikaalne kriips – kindlalt määratlemata helikõrgus joonega märgitud vahemikus; W – kõnehäälne silp. Fraasi moodustavad silbid on seotud punktiirjoonega.

Järgnevalt on toodud näited prantsuse rahvalaulu „Põdra maja" refrääni esitamisest erinevates vanustes. Esimene näide (vt joonist 2) on salvestatud, kui laps oli 20-kuune (1 aasta ja 8-kuune).



J o o n i s 2. „Põdra maja" refrään 20-kuuselt. Horisontaalteljel on näha aeg sekundites ja lauldud silbid. Vertikaalteljel on helikõrguste skaala. Tingmärgid: täpp – stabiilne helikõrgus; sabaga täpp – helikõrguse algus stabiilne, siis toimub helikõrguse vajumine joone pikkuses; vertikaalne kriips – kindlalt määratlemata helikõrgus joonega märgitud vahemikus. Fraasi moodustavad silbid on seotud punktiirjoonega.

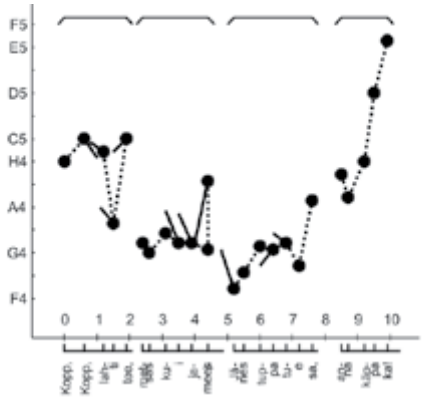
Laulmise ajal istus laps oma söögitoolis ning esitas laulu vastuseks palvele laulda. Nagu jooniselt 2 näha, esitas laps laulu algusest vaid ühe sõna (*kopp*), mille järel pidas pausi. Teine lause sisaldas juba kõiki nõutud sõnu (*ahti tee*) ning ka meloodiajoonis oli äratuntav. Järgmisena laulis Marie viiest noodist (neli n-ö kaheksandikku ja pikem lõpunoot) koosneva fraasi (*kopi tati tee*).



J o o n i s 3. „Põdra maja" 22-kuuselt. Horisontaalteljel on näha aeg sekundites ja lauldud silbid. Vertikaalteljel on helikõrguste skaala. Tingmärgid: täpp – stabiilne helikõrgus; sabaga täpp – helikõrguse algus stabiilne, siis toimub helikõrguse vajumine joone pikkuses (või vastupidi *glissando* abil stabiilse helikõrguseni jõudmine); vertikaalne kriips – kindlalt määratlemata helikõrgus joonega märgitud vahemikus; X – hinnanguline helikõrgus häiritud helisignaali põhjal (veesolin vannis). Fraasi moodustavad silbid on seotud punktiirjoonega.

Teine salvestis „Põdra majast" (joonis 3) on tehtud kaks kuud hiljem, kui laps oli 22 kuu vanune (1 aasta ja 10-kuune). Laulmise ajal oli Marie parajasti vannis ning hakkas laulma omal initsiatiivil, samal ajal hõõrus käega vanniseina, pesi seda. Laul algas salmiosa viimase rea mugandusega *äines eisma ääb* ('jänes seisma jääb'),[13] seejärel laulis ta refrääni kõikide sõnadega tervikuna ja siis veel esimese fraasi refrääni st. Kõik lauldud sõnad: *kopp, kopp, ahti ee, metsas kuvi ahimees, äenes tuppa tule daa, anna käppah ka; kopp, kopp, ahti tee*. Seejärel katkestas laulmise ja hakkas kommenteerima oma tegevust vanni pesemisel. Kokku kestis esitus umbes 27 sekundit.

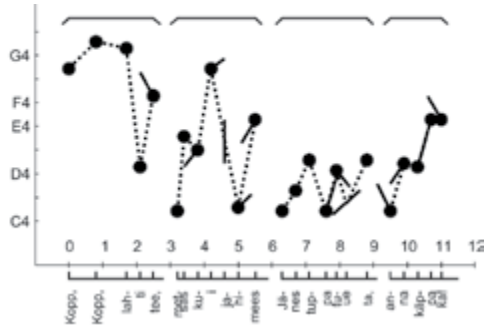
Joonisel 4 on kolmas salvestis samast laulust, mis on tehtud 23 kuu vanuselt (1 aasta ja 11 kuud). Marie istus söögitoolis ja esitas laulu väga kiires tempos, kokku kestis esitus umbes 11 sekundit. Viimase fraasi meloodiakäik oli õige (meloodia liigub üles), aga laps laulis selle oktav kõrgemalt. Sõnad: *kopp, kopp, lahti tee, metsas kuui jahimees, jänes tuppa tuue sa, anna käppa ka*.



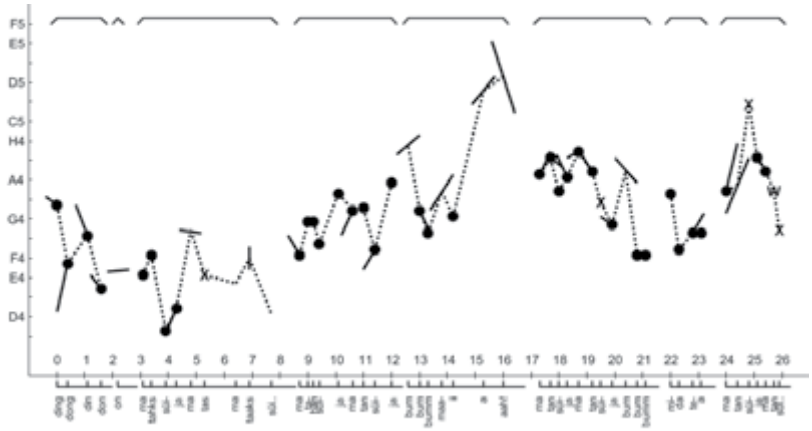
Joonis 4. „Põdra maja" 23-kuuselt. Horisontaalteljel on näha aeg ja lauldud silbid. Vertikaalteljel on helikõrgused. Tingmärgid: täpp – stabiilne helikõrgus; „sabaga" täpp – helikõrguse algus stabiilne, siis toimub helikõrguse vajumine joone pikkuses (või vastupidi *glissando* abil stabiilse helikõrguseni jõudmine); vertikaalne kriips – kindlalt määratlemata helikõrgus joonega märgitud vahemikus. Fraasi moodustavad silbid on seotud punktiirjoonega.

Joonisel 5 on toodud „Põdra maja" salvestis Marie 2. sünnipäeval (24-kuune). Laulmise ajal istus laps ema süles. Joonisel on näha vaid lauluepisoodi algus, kus ta esitas üksinda refrääni. Kuna kasutatud meetod ei võimalda analüüsida mitmehäälset laulu, siis edasine on toodud kirjeldusena: kui Marie lõpetas refrääni, ärgitas ema teda edasi laulma ja laulis ise ette refrääni esimese sõna: „kopp", seejärel jätkasid nad laulmist koos, kordasid refrääni ning laulsid koos ka salmiosa ning alustasid taas refrääniga, kuni Marie tegevuse järsult katkestas ja ütles: *Ei taha seda! Ei taha laulu!* Joonisel 5 on näha esituse esimesed 11 sekundit. Lauldud sõnad: *kopp, kopp, lahti tee, metsas kuui jahimees, jänes tuppa tule ta, anna käppa ka*.

[13] Korrektne oleks „lävel seisma jääb".



J o o n i s 5. „Põdra maja" 24-kuuselt. Horisontaalteljel on näha aeg ja lauldud silbid. Vertikaalteljel on helikõrgused. Tingmärgid: täpp – stabiilne helikõrgus; „sabaga" täpp – helikõrguse algus stabiilne, siis toimub helikõrguse vajumine joone pikkuses (või vastupidi *glissando* abil stabiilse helikõrguseni jõudmine); vertikaalne kriips – kindlalt määratlemata helikõrgus joonega märgitud vahemikus. Fraasi moodustavad silbid on seotud punktiirjoonega.



J o o n i s 6. Improvisatsiooniline laul 24 kuu vanuses. Tingmärgid: täpp – stabiilne helikõrgus; „sabaga" täpp – helikõrguse algus stabiilne, siis toimub helikõrguse vajumine joone pikkuses (või vastupidi *glissando* abil stabiilse helikõrguseni jõudmine); vertikaalne kriips – kindlalt määratlemata helikõrgus joonega märgitud vahemikus. X – helikõrgus on oletuslik salvestise tehniliste probleemide tõttu; W – kõnehäälega öeldud sõna helikõrgus. Fraasi moodustavad silbid on seotud punktiirjoonega.

Joonis 6 lõpetab näidete rea. Sellel on näha improvisatsioonilist laulu, kus 24-kuune Marie istub autos ja hakkab spontaanselt laulma sellest, et ta tahaks süüa. Laul algab üminaga *mh-mh* silbil (ei sisaldu joonisel), seejärel osa prantsuskeelse lastelaulu „Frére Jacques'i" refräänist („ding-ding-dong")[14]

[14] Eesti keeles laul „Sepapoisid". Kodus on seda talle ette lauldud mõlemas keeles.

ja sisaldab kaks korda fraasi „bumm-bumm-bumm", mis mõjub selle improvisatsiooni raames refrääniladsena. Enamiku laulust moodustas lause: „Ma tahaks/tahan süüa", ühe korra ka küsimus: „Mida teha?". Improvisatsioon lõppes järsku poolelt sõnalt, kui laps hakkas laulmise asemel rääkima. Salvestise kogupikkus on 41 sekundit, kuid tõenäoliselt eelnes sellele juba mõni eelnev lauluepisood. Joonisel 6 toodud laulu sõnad: *ding dong, din don on; ma tahks süija, ma tas, ma taaks süi; ma tahan süija, ma tan süija; bum bum bumm; maa-i-a-aah* (karje nendel häälikutel); *ma tan süija, ma tan süija, bum bum bumm; mida teha, ma tan süija, ma tan süi.*

Arutelu

Artiklis kirjeldatud juhtumiuuringust on näha, kuidas keele omandamine (üksikute sõnade asemel lausete kasutusele võtmine) eelnes laulmisele. Kui vaadelda laulmist tegevusena ning laulu selle produktina, võiks öelda, et sõnadel oli lapse jaoks tõenäoliselt olulisem roll kui meloodial. Kuigi laps häälitses meloodiliselt ka enne, hakkasid tuttavate lastelaulude sõnad meloodiat kujundama ja struktureerima. Kui käsitleda seda tulemust Valsineri (1997) tsoonilise arenguteooria valguses, saab öelda, et keele omandamine, kõnelemine lausetega Marie vaba liikumise tsoonis sai eelduseks sellele, et laulmine oli tegevusena võimalik tema lähima arengu tsoonis. Üks näide antud uurimusest, mis sobiks arengutsoonide teooriat illustreerima, on Marie kooslaulmise areng.[15] Kui Marie oli 20 kuu vanuselt laulmise kui tegevuse/oskuse saanud oma vaba liikumise tsooni, tähendas see käitumuslikult seda, et tema laulis ja teised kuulasid. Niipea, kui keegi hakkas lapsega kaasa laulma, jäi ta vait ja kuulas. Samuti kuulas ta meelsasti muusikat raadiost või plaadilt, kuid ei teinud katset kaasa laulda. Aja jooksul sai kooslaulmine tegevuseks ergutatud käitumise tsoonis. Kui keegi teine hakkas laulma ning laulu katkestas, laulis Marie ise järgmise sobiva sõna. Sellist põimlaulmist algatasid lapse ema või isa ning püüdsid ise hakata Marie esitatud laulu osadele järjest rohkem „sisse sõitma", et tekiks kooslaulmise kogemus, mis aega mööda pikenes paari laulusõna kaupa (ergutatud käitumise tsoon). 23 kuu vanuselt suutis Marie lõpuks laulda koos teistega, nii inimestega kui ka plaadimuusikale kaasa. Samuti võttis ta enda peale kooslaulmise initsiatiivi: *emme laulab, issi laulab ka ja Maiie laulab*. Seega saab öelda, et kooslaulmine omaette tegevusena oli jõudnud vaba liikumise tsooni. See protsess võttis kokku aega kolm kuud.

Artiklis on toodud kaks näidet Marie improvisatsioonilistest lauludest, millest esimene on tehtud vaatlusperioodi alguses ja teine lõpus. Esimene improvisatsioon koosneb peamiselt tähenduseta silpidest, mille vahele on pikitud mõned tähenduslikud sõnad „Põdra maja" laulust. Siiski tundub, et Marie jaoks on pigem tegemist oma hääle kasutamise viiside proovimisega või valju sisekõnega. Teine improvisatsioon, mis on tehtud neli kuud hiljem, on juba eesmärgipärane. Laps on tavalise rääkimise asemel valinud viisi väljendada oma soovi meloodiliselt. On näha, et keelelise arengu perioodis on ta liikunud nimisõnadelt tegusõnade juurde, mis väljendub verbi „tahtma" esituses. Esialgu püüab ta sõnu „ma tahaks" korrektselt hääldada (*ma tahks*, *ma taaks*), kuid

[15] Tuleb tunnistada, et see näide tekitab probleeme lähima arengu tsooni definitsiooni puhul, kuna kooslaulmine eeldabki tegevusena kellegagi koos laulmist.

ilmselt jäädes mõtlema vormide „tahaks" ja „tahan" erinevustele, valib kindla kõneviisi, mida laulmise huvides mugandab: *ma tan*.

Oleme kolleegidega (vt Raju, Välja, Ross, ilmumas) välja töötanud üsna lihtsad kriteeriumid, mille alusel hinnata improvisatsiooniliste laulude vastavust lääne traditsioonilisele lastelaulu kontseptsioonile, võttes seejuures arvesse nii produtseeritud helirea parameetreid kui ka esitust puudutavaid nüansse. Nendest lähtuvalt on nii 20 kui ka 24 elukuu vanuses esitatud improvisatsioonilised laulud põhijoontes sarnased: need ei lõpe toonikasse,[16] rütm ja meloodia on küll olemas, kuid tuginevad suuresti laulus kasutatud silpide ja sõnade häälduserütmile ning häälikute häälduse tulenevale. Siiski esineb 24. elukuu improvisatsioonis kaks kohta, mida võiks pidada teadlikuks meloodia kujundamiseks (silbid *bum bum bumm*, millel pole laulu muidu nii tungivalt esitatud sõnumiga otsest seost). Mõlema improvisatsiooni esitus on spontaanne ning verbaalseid kommentaare laulmisprotsessile või enda parandamist laulmise käigus ei esine. Kuna tegemist oli ainult helisalvestistega, mitte videoga, ei saa midagi öelda kaasnevate liigutuste kohta, kuid tõenäoliselt olid need mingil kujul olemas, sest samal perioodil tehtud mõne analoogse improvisatsiooni videosalvestistel on kaasnenud liigutused. Sellest käsitlusest tulenevalt ei saaks neid improvisatsioone pidada lauludeks, vaid tuleks käsitleda pigem laulmisprotsessina. Ka laps ise suhtus tuttavate lastelaulude laulmisesse ning improviseerimisse erinevalt. Kui improvisatsiooniliste laulude puhul ei olnud lapsel vaadeldavas vanuses tekkinud veel teose kui terviku tunnetust (improvisatsioon lõppes suvalisel hetkel, tihti mõne muu tegevuse algamisel), siis tuntud lastelaulude esitamisel jäi Marie alati pärast lõpetamist äraootavale seisukohale, kuna tavaliselt järgnes tema laulmisele vanematepoolne kiitus, tihti ka aplaus. Seega võib öelda, et tuttavate laulude puhul võiks teosetunnetusest mingis mõttes rääkida, kuid pigem tekitab terviku mingi väline lõpetav signaal, näiteks kiitus „Tubli!" või aplaus. Improvisatsioonilistele lauludele säärast välist kiitust reeglina ei järgnenud.

Kui laulmist saab lapse tegevusi jälgides teatud parameetrite esinemise järgi kindlaks teha, jääb väikelaste puhul alati õhku küsimus sellise tegevuse teadvustatusest. Kõige lihtsam on siis, kui laps ise defineerib, et nüüd ta laulab või mitte. Laulmise kui teadvustatud tegevuse ja laulu mõiste kinnistumise juures oli huvitav see, et kui Marie oli 20-kuuselt teatud määral omandanud „Põdra maja" refrääni laulmise oskuse, seostuski tükk aega just ainult see teos tal mõistega „laul". Küsimusele, kuidas käib laul, või palvele midagi laulda, reageeris ta alati „Põdra maja" refrääniga.[17] Ometi suutis ta esitada juba ka katkeid teistest lastelauludest, kuid millegipärast ei laiendanud ta neile veel „laulu" mõistet. Kuskil 22 elukuu vanuselt hakkas ta aga defineerima laulmist kui tegevust ning laulu mõistet laiendama ka teistele lauludele. Oma laulmist juhatas ta mõnikord pidulikult sisse, näiteks: *Mina laulan nüüd natuke: ong*

[16] Antud juhtudel on nii laulude algamine kui ka lõppemine tinglikud, sest tegevus on salvestamise ajaks juba alanud ning tõenäoliselt jätkus sarnasel moel ka pärast salvestamise lõppu.

[17] Nimetatud laulu salmiosa sõnu suutis Marie laulda emaga kaasa 2-aastaselt (24-kuuselt), kuid tekkis kahtlus, et salm ja refrään ei moodustanud lapse jaoks selles vanuses veel ühtset tervikut. Sellele annab kinnitust üks vestlus lapsega, kus ta rääkis, et issi oskab laulda laule *„Kopp, kopp, lahti tee"*, *„Ong see sõitis tuhh-tuhh-tuhh"* ja *„Põdanna metsa sees"*. Sõna *põdanna* tähistas siis laulusõnu „põdral maja (metsa sees)".

see sõitis tuhh-tuhh-tuhh (öeldes esmalt laulusõnad välja kõnehäälselt), millele järgnes laulmine kõnehäälest äratuntavalt erineva lauluhäälega.

Kui vaadelda analüüsi kaasatud „Põdra maja" esitusi, on kõige suuremat arengulist hüpet märgata esimese (20-kuune) ja teise (22-kuune) näite vahel. Kuigi 20 kuu vanuses tehtud salvestis koosneb ainult üheksast silbist, võib juba märgata laulu originaalile omast sisemist meetrumit: kuigi esimeses fraasis (*kopp-kopp*) jätab laps ühe sõna ära, ei kiirusta ta selle arvelt edasi, vaid teeb pausi, kuhu põhimõtteliselt mahuks ka teine, puuduv sõna. Sõnapaar „lahti tee" on lapsele arusaadav ning ilmselt ka hästi meelde jääv, samas kui laulu edasine sõnum („metsas kuri jahimees") sisaldab raskemini häälda-tavaid sõnu ning tõenäoliselt oli talle seal ainsana tuttav sõna „mets", mistõttu seda ta veel esitada ei suutnud. Kaks kuud hiljem on ta omandanud aga juba kõik refrääni kuuluvad sõnad. 22 kuu vanuses tehtud salvestises tundubki lapse põhitähelepanu olevat sõnade õigel häälduse l. Sellest tulenevalt on ka tempo suhteliselt aeglane ja Marie hääldab hoolega välja raskeid häälikukombinatsioone, eriti sõnas „jänes" (*äenes*, *äines*). Kuu hiljem (23 kuu vanuselt) on ka sõnade hääldus paranenud niivõrd, et laulmise tempot saab oluliselt tõsta ning rohkem rõhku läheb meloodia kujundamisele, sealjuures on laps eriti silmas pidanud laulu viimast fraasi, kus ta laulab käigu üles õigesti, aga oktav kõrgemalt. Siiski ei ole 20–24 kuu vanuses tehtud salvestistes märgata teadlikku helistiku valikut, laps lihtsalt alustab laulmist „kuskilt" ning ei korrigeeri seda laulmise käigus ka kuidagi näiteks oma hääleulatusele paremini sobivaks. Kolmandas näites (23-kuune) lõppeb laul väga kõrgel noodil (E5), mida tal on üsna raske teostada, hääl läheb väga peenikeseks ja vaikseks.

Lisaks artikli sissejuhatuses puudutatud kõne ja muusika arengujärjekorra probleemistikule võiks selle juhtumiuuringu käigus kogutud informatsiooni põhjal kategoriseerida kaheaastase väikelapse häälitsusi nende eesmärgi kohaselt kolme kategooriasse: 1) sõnad/rääkimine, 2) laulud, st meloodia produtseerimine koos või ilma laulusõnadeta, 3) kriisked, karjed ja hüüded. Viimane kategooria võib sisaldada samuti sõnu või silpe ning kõlada mõnikord mingis mõttes isegi meloodia sarnaselt. Pigem oli kriiskamine kombineeritud laulmisega, kuid mitte alati. Mariel esines vaadeldud ajavahemikus kaks suuremat kriiskamise perioodi: esimene oli kõne-eelsel perioodil, umbes 6.–8. elukuu vahel, ning teine vahetult enne 2. sünnipäeva. Ka evolutsioonilises mõttes võiks karjumine/kriiskamine täita eraldiseisvat ülesannet, milleks on otsekohese tähelepanu vajadus.

Käesolevas töös kasutatud Stadler Elmeri ja Elmeri (2000) meetod on hea helisalvestiste detailseks analüüsiks, eriti improvisatsiooniliste laulude ülesmärkimiseks, kuid ei võimalda näiteks joonisel toodud meloodiat hiljem väga lihtsalt klaveril järele mängida. Isegi stabiilsena fikseeritud helikõrgused jäävad reeglina siiski „klaveriklahvide vahele" ning säärasest noodistusest tuleks lugejal teha ise otsus, milline helikõrgus klaviatuuril valida. Suur probleem on ka harjumuspärase rütmi märkimisviisi puudumine. Horisontaalteljel saab helikõrguste pikkusi muidugi eristada, kuid näiteks punkteeritust või *legato*'t see edasi ei anna. Analüüsiprotsessis kulub paarikümne sekundi pikkuse laulu analüüsimiseks kordades kauem aega. Üht helikõrgust on võimalik kuulata sadu kordi ning suurendada helikõrguse kõikumist näitavat graafikut ülimalt detailseks. Tuleb silmas pidada, et selline analüüs ei sarnane laulude kuulamisele tavapärases olukorras, kus inimtaju üldistab ning kategoriseerib kuul-

dud helikõrgusi mõnel juhul ka teisiti, kui seda näitab detailne analüüs. Tavapärasel kuulamisel jäävad tähelepanuta helikõrguse kõikumised (n-ö sabad joonisel täppide taga), kuna nende kestus on reeglina mõned millisekundid. Silpide alguses olevatest kaashäälikutest tulenevalt võib samuti helikõrgus kõikuda, olen püüdnud silpide puhul analüüsi alla võtta vokaalide helikõrgused. Taoline visualiseerimismeetod töötab kõige paremini siiski juhtudel, kui salvestist on võimalik joonise vaatamise ajal ka kuulata.

Kokkuvõte

Käesoleva uurimuse aluseks olid video- ja helisalvestised ning kirjalikud märkmed ühe väikelapse keelelise ja muusikalise arengu kohta. Uuringu ajendiks oli huvi, kas konkreetne väikelaps areneb muusikapsühholoogias enim tunnustust saanud teooriate kohaselt, kus keele omandamine on laulma hakkamise eelduseks, või on tegemist lapsega, kes „laulab enne rääkima hakkamist". Juhtumiuuring näitas, et laulmisprotsessis ilmusid esmalt laulusõnad, misjärel hakkas kujunema ja täpsustuma laulu meloodiajoonis. Enne kui laps suutis ümiseda lastelaulu meloodiat, pidi ta olema selle omandanud koos laulusõnadega. Vaatlusperioodi jooksul arenes paralleelselt oskus laulda tuntud lastelaule ning improviseerida, mõelda ise laule välja. Kui esialgu oli laulmine lapse jaoks individuaalne tegevus, siis teise eluaasta alguseks soovis ja suutis ta laulda ka teistega kaasa ning hakkas tegema ise ettepanekuid koos laulda.

Uurimuse läbiviimiseks ning tulemuste avaldamiseks on andnud loa Eesti Muusika- ja Teatriakadeemia eetikakomisjon. Mõlemad lapsevanemad on andnud nõusoleku lapse andmete kasutamiseks teaduslikel eesmärkidel. Uurimus on läbi viidud Eesti Teadusagentuuri grandi IUT12-1 „Muusika performatiivsed aspektid" ning Kanada sotsiaal- ja humanitaarteaduste fondi poolt finantseeritava projekti „Advancing Interdisciplinary Research in Singing (AIRS)" toel.

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Words before melody: a case study of infant musical development

Keywords: infant musical development, case study, relationship between linguistic and musical development

The article explores and analyses the musical development of an infant from birth to the beginning of her third year of life. Detailed analysis addresses the months 20–25. The subject of analysis is Marie, daughter of the first author, whose development has been recorded by her parents in the form of diary entries as well as video and sound recordings used in the analysis. Marie began to speak at 19 months and to sing at 20 months. The development of singing skills is illustrated by an analysis of her presentations of children's song („The big old deer") and two improvised songs. In Marie's case acquisition of speech was a prerequisite of singing. At first, recognizable elements of lyrics began to emerge, then the melody. The child could hum the melody of a children's song only after she had learnt it together with the lyrics. Her abilities to sing children's repertoire and to vocally improvise developed parallelly. At first, her musical self-expression evolved on an individual level (as vocalised inner speech), while at 23 months there was added appreciation of singing as a social activity, an ability and wish to sing along with others, and to initiate such activity.

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Adaption to Estonian children of the protocol for cross-cultural research in singing.

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ADAPTION TO ESTONIAN CHILDREN OF THE PROTOCOL FOR CROSS-CULTURAL RESEARCH IN SINGING

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Abstract. A Test Battery created in Canada, aimed at mapping the musical development of children of different ages and in different cultures, was piloted within a group of Estonian children (N = 26, age 4 to 12 years) with varying degrees of musical training. The verbal parts of the test were translated into Estonian and adapted, where necessary, to the temporal structure of the sub-tasks involving rhythmic and metric aspects. Participants were able to successfully comply with the majority of the test components. The most interesting discrepancy regarding the rationale of the original Battery was related to the different possible concepts of the term 'song' by the participants. As many children exhibited considerable shyness during testing, a longer warming-up period may be required for them in order to overcome the effects of an unfamiliar environment and the unexpected nature of some tasks within the Battery. Various suggestions are presented for the further development of the Test Battery.

Keywords: musical tests, test adaption, cross-cultural research, singing, AIRS

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1. Introduction

This paper reports a pilot study where a Test Battery created in Canada and aimed at mapping the musical development of children in different age groups and in different cultures was applied to children speaking Estonian as their native language and living in Estonia. The Battery (Cohen *et al.*, 2009) tests voice range, singing back the 'easy' minor third interval and other musical elements (scales, major triads), vocal creativity, singing back a familiar song, and learning an unfamiliar song. Speech and language abilities are captured at the beginning and end of the Battery. The purpose of the present pilot study was to learn to what extent the Test Battery is applicable in a cultural and linguistic environment different from that of Canada, and to suggest changes for individual components

of the Battery for suiting cross-cultural research. The article gives an overview of the piloting process and describes preliminary results.

The introduction section of paper presents some background information of this pilot study – why it was initiated, what the main aims are. Also for giving the process and results some reference system, an overview of Estonian music education is given.

1.1. AIRS project

Work on the Test Battery is part of a major collaborative research initiative aimed at advancing interdisciplinary research in singing (abbreviated as AIRS[1]) that focus on three themes: (1) the development of singing ability, (2) singing and learning, and (3) the enhancement of health and well-being through singing. These themes may be understood, respectively, as defining what it is theoretically possible to achieve with the human voice given mental, physiological and environmental constraints, what singing behaviors occur in practice, and what the societal implications of singing are. One of the goals of the first theme mentioned is to develop a Test Battery suitable for different cultures and subjects of different ages and at different levels of education. According to Stevens (2004), the aim of cross-cultural research in music is to investigate not only the so-called universal psychological principles of music cognition, but also individual differences in music processing. Test Battery is still in the adapting and piloting phase simultaneously in several countries. There is an annual conference to discuss the progress. As Test Battery includes many components that can be related to several substantive research questions according to different interests and domains, it is quite challenging to develop a methodology that would meet everyone's needs.

A test can be evaluated at the basis of its reliability and validity. For a test of musical abilities, Karma (1973, 2007) advised to evaluate it using a theory-driven approach rather than at the basis of its ecological validity. He believes that the latter approach is not culture-free and favors participants with prior musical training. "An ideal test might be in between: abstract enough to be objective and as culture-free as possible but so close to music that interests and sufficient wideness of scope are maintained" (Karma 1973:6). Karma's (1973:13–14) criteria for constructing a good test of musical abilities require the test to be (1) as culture-free as possible; (2) as free as possible from the effects of musical training; (3) objective, so that a single right answer is possible to every item; (4) not too long and boring; (5) not affected by differences between individuals regarding sensory discrimination ability; (6) suitable for participants as young as possible. These guidelines may serve as an outline for cross-cultural validation of the AIRS Test Battery and its possible future improvement. In particular, one may argue that more experienced participants, i.e. those who are older and with more musical training, may have an advantage over less experienced participants in responding to some items of the test. If the primary purpose of the AIRS Test Battery is to

[1] For more information see webpage http://www.airsplace.ca/

measure musical aptitude, i.e. to predict a child's potential success in subsequent musical studies, then the possible effects of prior musical training should be kept on as low a level as possible. If, on the contrary, the purpose of the Test Battery is to measure musical achievement, then it should be evaluated on different grounds.

1.2. Estonian music education system

In Estonia, music education is part of the education curriculum from as early as kindergarten. Music lessons (singing and/or dancing) for the children of pre-kindergarten age are also very popular. Compulsory education in Estonia (9 grades) starts when children are 7 years old. For every school year during the years of compulsory education, as well as in high school, there are specific government-approved programs and study materials, including text- and song-books, CDs and DVDs, which focus on (choir) singing, music theory and music history. The national curriculum in Estonia prescribes that schools teach two 45-minute music lessons each week in grades 1 to 4 and one lesson in grades 5 to 12 (Kangron, 2011:7). The majority of music teachers hold a university degree. Many schools have a choir, where children participate voluntarily. Estonia also has a network of music schools, which provide children with 7 years of instrumental training and the basics of music theory and music history. There are three secondary-level music schools in Estonia, where 3- or 4-year instrumental training and advanced level courses in theoretical subjects are combined with the national high-school curriculum, giving students an opportunity to continue their university-level studies either in music or in other disciplines.

The three Baltic countries are famous for their Song and Dance Festivals (SDFs), which date from the mid-nineteenth century. In Estonia's recent history, the festivals culminated in 1988 as one of the key components in regaining the country's independence (the 'singing revolution'). In 2003/2008 UNESCO included the festivals on the list of the Oral and Intangible Heritage of Humanity. SDFs take place regularly, but not each year. Collectives start practicing the repertoire about a year before the event and have to pass several qualification tests to gain their place in the festival. Usually there are about 30 thousand participants, out of a total population of about 1.3 million. Most children are involved in the festival, either singing or dancing, at least once during their schooling.

In addition to the festivals, there are also important musical events for soloists, which are very popular, in the form of Estonian Public Broadcasting song competitions for children aged 3 to16 (*Laulukarussell*, Song Carousel, since 1992, which was preceded, from 1968, by the similar *Entel-Tentel*) and for young adults aged 16 to 28 (*Kaks takti ette*, Two bars forwards, since 1972). *Laulukarussell* has semifinals for all age groups in every Estonian county and final live broadcast concert. As a commercial project, the Estonian version of Pop Idol has been broadcast since 2007. Every two years the local so-called Musical Olympic Games are organized for students from the 7th and 11th grades by the Estonian Society for Music Education, and these include competing in singing, composing, and musical knowledge. Children are involved in Estonia's professional musical life.

There are some children's choirs (for example, *Ellerhein* for girls, *Revalia* for boys, and choirs of the Estonian National Broadcasting Agency for both sexes), which frequently represent Estonia at international singing competitions. They are also involved in musical performance projects together with professional adult choirs where bigger choral forces are required.

The Estonian 'musical environment' can be overall described as Western, as the popular music is strongly influenced by international mainstream trends. In addition there is a notable community promoting and experimenting with Estonian historic singing, called *runosong*. Singing *runosongs* is also part of the national music curriculum.

Estonia was involved in the AIRS project because its national representation as a 'singing nation' and outstanding musical education program in schools described above. In the future phases of the AIRS, Estonian data could provide interesting input for cross-cultural research with countries where school system is different. As the Test Battery is piloted in different countries, there is also the important question of language as many items in the Battery need translating and adjusting to target languages.

1.3. Research questions

Pilot study described in this article has several research questions:

1. Adapting the items of the Battery – what adjustments are needed considering Estonian language and culture? What is the overall assessment about the suitability of the Test Battery for cross-cultural comparative research?
2. Testing the process itself - how long does an average testing session take, which items are most challenging for children, what suggestions can be done for improving the process?
3. Participants – which are suitable age groups for the Test Battery, are children with extracurricular musical education doing better in testing?

2. Method

2.1. Participants

Participants (N = 26; 17 girls and 9 boys, ages 4–12) were selected randomly. Most of the children were participants of children's summer city camp who were given an opportunity to participate in this pilot study. Two children were recruited from among the researcher's personal acquaintances. Table 1 gives an overview of the participants' age, sex and education. All participants were native speakers of Estonian. Half of the children had no special musical training except participation in activities at kindergarten or at school (e.g. singing in a choir). The other half of the children had studied an instrument at a music school or with a private teacher, and/or participated in a choir on an extracurricular basis.

Table 1. Participants

No.	Age	Sex	Extra-curricular musical activities (yes/no)
2	4	M	No
3	4	M	No
5	8	F	Yes
6	8	M	Yes
7	7	M	No
8	8	F	No
9	10	F	No
10	9	F	No
11	11	M	Yes
12	9	M	No
13	8	F	Yes
14	10	F	Yes
15	11	M	Yes
16	9	M	No
17	9	F	Yes
18	11	F	Yes
19	12	F	No
20	12	F	Yes
21	12	F	No
22	12	F	Yes
23	10	M	Yes
24	8	F	Yes
25	10	F	Yes
26	9	F	No
27	7	F	No
28	8	F	No

2.2. Procedure

All children except for two 4-year old boys (twins) were tested in a rehearsal room at a music school. All sessions were videotaped. Every child was tested only once. The duration of each testing session averaged 15–20 minutes. All audio samples and feedback during the tests were provided by the researcher using her own voice or a keyboard instrument.

2.3. Material

The 11 components of the AIRS Test Battery (Cohen *et al.* 2009), hereafter referred to as the Battery, are presented in Table 2. As the testing was to be conducted in Estonian, all the content of the test items were translated by the researcher. Pre-recorded test items exist in English, but were not applicable. It should be noted that differences between languages can manifest themselves even in non-verbal exercises[2].

[2] For example, as in *lah-lah* [English pronunciation: la-la] sequences, inter-vowel consonants tend to become geminates for native speakers of Estonian [Estonian pronunciation: lal-lal].

Table 2. AIRS Test Battery of singing skills. Modified from Cohen *et al.* (2009:113)

AIRS Test Battery of singing skills		
Component number and its description		Purpose
1	Opening conversation (currently incorporating a sentence containing all phonemes of the relevant language)	Indicate level of speech and grammatical development; show participant's mood and interest; put participant at ease
2	Determine vocal range	Gauge vocal range; determine placement of remaining components with respect to range
3	Minor third participant name call-back	Measure ability to sing minor third (*sol-mi*); begin with an easy task of minor third, 'assumed' universally easy for children
4	Review and sing back *Brother John*: all, as 8 phrases, and whole song	Measure ability to sing a highly structured and possibly familiar piece; provide training on one simple piece; for future use of a song accessible to many cultures (translated in > 40 languages)
5	Sing favorite song or, if no favorite, a known song of choice	Obtain information about favorite songs and accuracy and consistency of its production; determine musical preferences and consistency of preference
6	Sing back interval, major triad, scale (up/down)	Measure accuracy of singing musical elements; enable modeling song performance from performance on elements
7	Improvise ending of a song	Measure musical (singing) creativity and mean length of utterance (a verbal measure); enable modeling of development of musical creativity and compare it with language creativity
8	Free composition to choice of 4 pictures (sun, apple, heart, flower)	Measure song creativity and compare with results of Stadler Elmer (2000) who also used pictures; pictures constrain themes but inspire lyrics
9	Sing back unfamiliar song *We Are One* (Carolyn McDaid)	Measure memory for unfamiliar tune with lyrics using an anthem for the natural environment and humanity, based on the Earth Charter
10	Sing *Brother John* from recent memory	Measure song memory (immediate retention) over the intervening 15 minutes since first heard
11	Closing conversation	Provide data for indexing verbal level; provide a measure of mood, attitude, and activity level at end of test; encourage returning for the next session; end session in a pleasant way

2.3.1. Description of the tasks in Test Battery and adaption to Estonian

This section gives an overview of the nature and aims of the components of the Test Battery and their adaption to Estonian. Our aim was to adopt the Test Battery as closely to the original as possible in the piloting phase.

The primary aim of the opening conversation (Component 1) was to make the participants feel relaxed and to create a friendly testing environment. Information

gained during the opening conversation shows the level of language acquisition and skills of a participant and indicates her/his overall mood and interest in the task. No standard questionnaire was used in conversations. Questions asked by the researcher were related to the participant's first name, age, school year, involvement in musical activities (playing an instrument, singing or dancing) and, in some cases, to musical activities practiced by other family members. At the end of the conversation each child had to repeat twice an Estonian pangram "*See väike mölder jõuab rongile hüpata*" (translation: "This little miller can still jump on the train"), which is equivalent to the English sentence "The quick brown fox jumped over the lazy dog". A pangram (Greek: *pan gramma*, 'every letter') or holo-alphabetic sentence is one in which every letter of the alphabet is used at least once.

Component 2 in the Test Battery is aimed at determining a participant's vocal range. In order to motivate participants to become involved in this task, we used the following phrase as an introduction: "Now we are going to do some voice warming exercises as all singers do". As there are no fixed guidelines in the protocol as to how to measure a child's vocal range, the researcher first herself demonstrated a glissando on the /a/-vowel. Then she instructed the child to produce "as low a voice as possible" as a first step and then to glide upward as high as possible using the /a/-vowel.

Component 3 is aimed for singing back minor third interval. To make it more playful, component was originally designed after a popular name call-back exercise in English as seen in Figure 1. Unfortunately it does not have an equivalent game in Estonian. Neither can it be translated literally into Estonian, as the number of syllables in corresponding Estonian words does not equal the number of syllables in the original English words and it is therefore impossible to maintain the rhythmic structure of the game in translation. As the aim of this item was not specifically related to the child's name but singing back an musical interval, we combined *lah*-*lah*-syllables with two easy rhythmic figures for this task; these were first sung by the researcher and then repeated by the child.

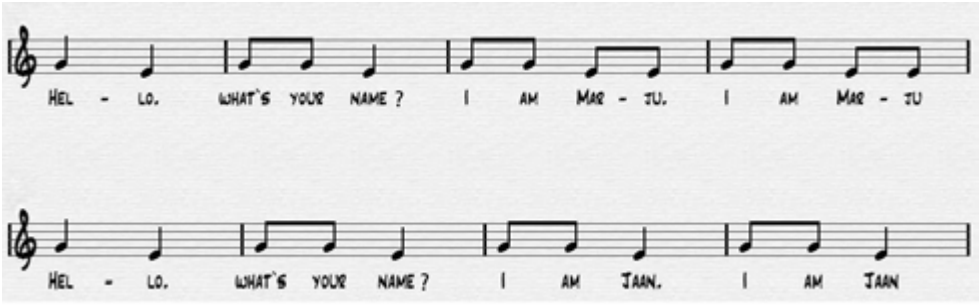

Figure 1. 'Name game' originally used in item no. 3. Experimenter sings the question and child responds with his/her name. Names of the authors are used as an example for different rhythms used in the answer according to the syllables in the name.

The nursery rhyme *Brother John* in Component 4 is widely known in Estonia under the title *Sepapoisid* and, as in other languages, is usually sung as a canon. The Estonian lyrics are mundane in nature and do not have the 'ding-dong' syllables imitating church bell sounds. The English lyrics "Are you sleeping / Brother John / Morning bells are ringing / Ding, dang, dong" are performed in Estonian as "*Sepapoisid / Teevad tööd / Taovad tulist rauda / Päeval, ööl*", which can be literally translated back as "Blacksmith's boys / Are working / Beating hot iron / Day and night". The aim of this component is to measure the ability to sing a highly structured and possibly familiar song and provide training on one simple song. *Brother John* was chosen as it is widely known in different countries/ languages and could provide interesting comparative data for cross-cultural research.

Component 5 in the Test Battery requires the participant to perform her/his favorite song without instrumental accompaniment. In case the child does not have a favorite song, some other song could be chosen, for example something learned at school, heard on the radio etc. The aim of this component is to get the participant to sing a song of his/her choice.

The task in Component 6 of the Test Battery consists of a number of pitch-matching ability exercises based on musical intervals, triads, and scales. The aim was to evaluate how accurately children can repeat those musical elements common in Western culture. This test component is similar to the voice warming-up exercises used in music lessons and in choir practice and therefore familiar to children.

For Component 7, participants had to improvise an ending for a song, in order to show their musical creativity. A short unfinished song was presented to a participant (see Figure 2). In 18 cases it was sung by the researcher using *lah-lah*-syllables, and in 8 cases with words (their free translation from Estonian being "I know a dog who barks"). The melody was presented twice: the first time for listening purposes only, and the second time for continuation by the participant.

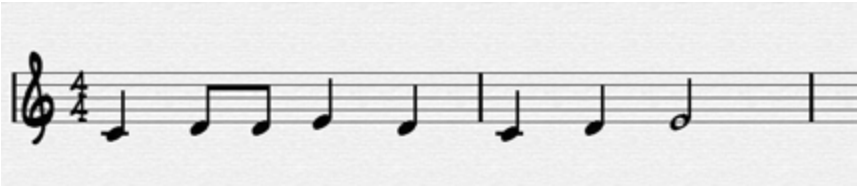

Figure 2. Melody presented in test item no. 7 to be completed by participant.

For Component 8, children were asked to invent a free song that relates to one of the available pictures. The protocol in the original Test Battery included four iconic computer drawings: a heart, a flower, a sun, and an apple, each on separate white card and colored brightly in red, blue-and-yellow, yellow, and green,

respectively. This picture set was presented to 19 children. For the remaining seven children, an alternative set of four photographs was used representing a sunflower, a goldfish, a car race, and a performance of a folk band. In response to the request by the interviewer to select the favorite picture out of the four presented, the participant chooses an item, and the other pictures are put away. Since there are no specific guidelines in the Test Battery protocol, three different instructions might have been given to a participant in the present study: (1) When you look at this picture, does any song pop into your head?; (2) Make up a song about this picture; and (3) Please describe this picture by singing.

During the next task (Component 9), children had to sing back a song, presumably unfamiliar to them, "We Are One" by Carolyn McDaid (see Figure 3). "We Are One" is an anthem for the natural environment and humanity, based on the Earth Charter (a declaration of fundamental ethical principles for building a just, sustainable and peaceful global society in the 21st century). This task is aimed at estimating the short-term memory of a participant, as the song is presented only twice. After each hearing, the participant is asked how much of the song (s)he remembers, and is then requested to recall anything (subject, lyrics, or melody) and encouraged to sing it back from memory without any active learning process, rather as in the case of *Brother John* in Component 4 of the Test Battery. Only the beginning of the song (bars 1–12) was used and translated into

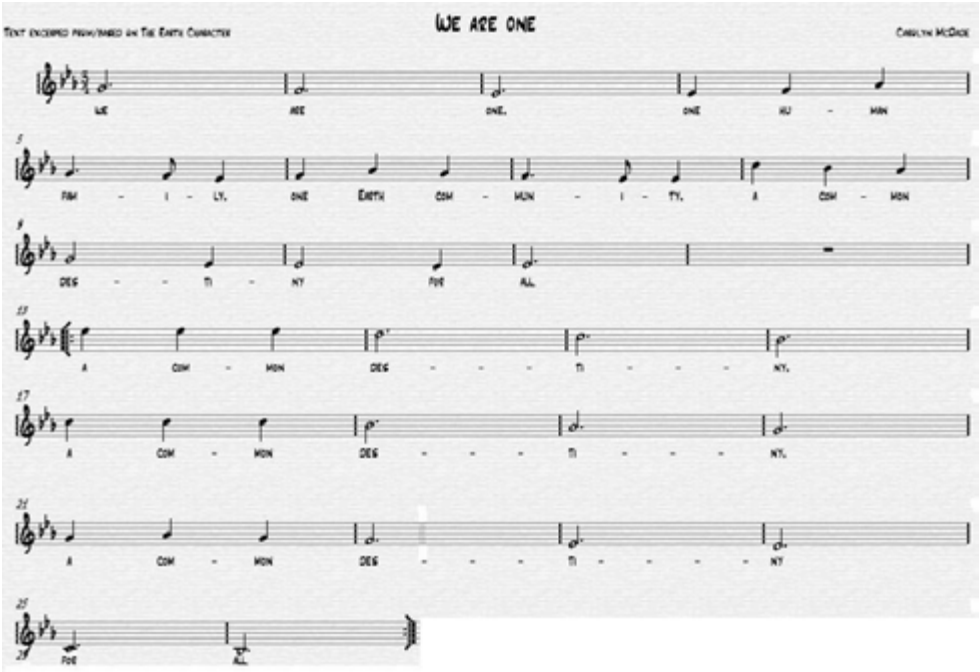

Figure 3. Unfamiliar song "We are one" by Carolyn McDade presented in item 9. Score adapted from Cohen (2011:51).

Estonian for this study. The English original of the beginning of the song is "We are one / One human family / One Earth community / One common destiny for all"; its Estonian translation – fitted to the meter and rhythm of the original as accomplished by the interviewer – is: "*Üheskoos / Me sõbrad oleme / Me üksteist toetame / Nii saabki korda kõik me Maal*", and the translation of the Estonian text back into English is "Together / We are friends / We support each other / That's how all will be all right on Earth". In the translation, we tried to use simple words common to children's vocabulary, as the meaning of this song's lyrics seems rather abstract for youngsters. The melody of "We are one" is quite difficult as it lacks easily memorable rhythmic structure, phrase repetitions, it contains difficult melodic leaps.

The last singing task (Component 10) in the Test Battery was to perform *Brother John* once again but this time from memory. The aim of this task was to compare the immediate retention of the song as in Component 4 with its retention when delayed by about 15 minutes, during which traces of its memory might have been interfered with by other tasks.

The final component of the test, Component 11, was designed to provide a measure of the mood, attitude, and activity level of participants at the end of the test and to finish the session in a pleasant way. In general, the majority of children were tired and anxious to leave the room after testing, so that the final conversation was cut short. The researcher asked the participants two questions: (1) How did it feel doing these kind of exercises? (2) Would you be willing to participate in the same kind of testing again in the future?

3. Results

This section of the article gives a concise and descriptive overview of results. No deeper acoustical analysis of collected data is presented here as the aim of this article is focused on the testing process and adaption of Test Battery to Estonian. The overall assessment of the pilot study was successful. Table 3 presents the proportion of successful accomplishers for each task out of the total of 11 tasks of the Battery. 'Success' is here defined as any musical activity the participant managed to produce during the task, no result was counted as 'wrong'. Unsuccessful cases indicate the number of situations the participant did nothing in response to the researcher's guidelines. The two groups of participants are distinguished according to whether or not they were involved in extra musical activities. Test items (components) which were modified in this experiment are marked with an asterisk. The last column in the table comprises comments related to the applicability of a specific component under the Estonian circumstances.

The following paragraphs will summarize the results in order of components in the Test Battery.

Component 1. All participants managed to engage in the opening conversation and repeat the pangram.

Table 3. The number of successful participants for each item in the Test Battery. Those items which were modified in comparison with the original Test Battery are marked with an asterisk. Group I consisted of participants with and group II of participants without extra musical activities. See also Table 2 for description of the test items.

Test item	No. of successful** participants		Comment
	Group I (n = 13)	Group II (n = 13)	
1*	13	13	
2	13	13	Some different method instead of singing the vowel /a/ could be considered.
3*	13	13	
4	13	13	In cases where the song is well known to the participants prior to the testing, training it by phrase is not necessary as they can sing it right away.
5	12	11	The word 'favorite' may confuse participants, so that it may be reasonable to ask them to perform any familiar song.
6	13	13	
7*	12	12	
8*	8	8	There are different possibilities for conceptualizing the meaning of the word 'song' (see text for details).
9*	13	12	
10	13	13	This item did not fulfill the purpose for long-term memory assessment as the song was known to the participants prior to the testing.
11	13	13	

** 'Success' is here defined as any musical activity the participant managed to produce during task; no result was counted as 'wrong'. Unsuccessful cases indicate the number of situations the participant did nothing in response to the researcher´s guidelines.

Component 2. All the children were able to do this, but there was some discomfort with the task as some children needed more positive feedback and encouragement by the researcher. Another problem arose as some children tried to imitate the researcher's voicing in terms of pitch and did not adjust the exercise to their own vocal range.

Component 3. The task turned out to be easy and did not cause problems for any of the participants.

Component 4. This song was familiar to all the children and it was not necessary to rehearse it, as they were generally able to sing it right away when prompted. However, some children still asked the researcher to start performing the song phrase-by-phrase, so that they could repeat the individual phrases as responses. This approach can be interpreted as a kind of 'security measure', which some participants used in order to become familiar with this exercise and avoid singing the whole song alone.

Component 5. Participants needed to be encouraged to perform any song (s)he knew, as many claimed not to have any favorite songs at all. Three participants out of the total of 26 (two girls, 8 and 10 years old, both without special musical

education, and a boy of 10 years who studies guitar and sings in a boys' choir) refused to fulfill this task even after long negotiations. The selected songs by the rest of the participants ranged from popular Estonian nursery rhymes originating from the past century to recent popular hits from the adult repertoire in both English and Estonian, e.g. Bobby McFerrin's "Don't Worry Be Happy". One 9-year old girl sung a song about Paris in French, which she had learned in a French lesson at school. Not all performances were complete; some children sung only excerpts or the chorus of a song. An extraverted 8-year old boy said that he had a favorite song but unfortunately it was in English ("Hard Rock Hallelujah", by the Finnish heavy metal band *Lordi*) and he could not sing it. Instead, he chose to perform a long and complicated song which he had learned in the boys' choir.

Component 6. This component appeared to help participants relax after the rather challenging task of performing their favorite song. All children were able to fulfill this task. Certain individual differences relate, for example, to the ability to carry a tune and also to motivation, as this test element might have been perceived as quite long and boring. One of the youngest participants (a 4-year-old boy) approached the task creatively and did not respond with an exact repetition of the material presented by the researcher, but with his own improvisations, creating in this way a musical dialogue with the latter.

Component 7. Like the task in Component 5, this one, too, was a little more challenging for the participants and needed courage on their part. The majority of children managed this task with no problem. Only two children, a 10-year-old boy and a 7-year-old girl, declined to perform. In the first case, the song was initiated by the researcher with words and in the second case without words. In general, it can be said that children who are involved in additional voluntary musical activities tend to complete the task according to the logic of tonality (i.e. ending the melody with the first scale step) and two-/four-bar phrasing form. Seven children repeated the melody phrase first and then continued or repeated the phrase, only providing a slightly different ending.

Component 8. This task seemed to be the most difficult for the children. As many as ten children out of 26 were unable to make up a song, in other words, they did not do anything. Some reasons for this may lie in the testing procedure, but the most important one was probably the child's overall shyness and/or fear of doing something wrong. Out of 10 of the so-called failure cases, four children were attending extra music lessons or studying at a music school and should in principle have been able to do and/or been used to this kind of exercise. Among the photographs in the alternative set, only those representing a sunflower and a fish were chosen by the participants. From the original set, all the pictures were chosen. This suggests that children preferred pictures of well-defined items to pictures involving action. Out of the ten participants who failed to complete the task, nine had been presented the original set and one the alternative set. As mentioned in the methodology section, three kinds of instructions were used. As only 26 children were tested, it is difficult to say if one instruction 'worked' better than another, as each instruction could have led either to an eventual success, or to

a failure. Three participants out of the 16 who accomplished the task cited a poem with no melody in response to the task. Eight children sang an already existing song somehow related to the picture or used an existing melody (in one case *Brother John*) to improvise new lyrics related to the content of the chosen item. Only eight participants were able to create a new song with both an original melody and lyrics.

Component 9. Children seemed to use three different memory strategies for remembering this song, apparently dependent on their individual concept of a song. Both the lyrics and the melody in this task were difficult and participants struggled to fulfill the task. The most common method was to remember the lyrics only as the main identification of the song. This strategy was used equally by children both with and without special musical training. The second method was to disconnect lyrics from the melody and to try to remember them separately: first the lyrics and then (when listening to the song for the second time) the melody. When asked to perform the song, a participant of this type first recited the lyrics and then hummed the melody, or in some cases was able to sing some words but not the complete phrase. Five children out of the 26 in our study used this strategy, i.e. hummed the melody or performed it first with neutral syllables. Only two participants (11- and 10-year-old boys, both of whom were learning a musical instrument) used the third method when they (very successfully) tried to remember simultaneously both the lyrics and the melody right after the first hearing. Only one child (a 4-year-old boy) failed to complete this task, presumably due to boredom and his anxiety to leave. His twin brother however was able to remember quite a number of words. Potentially, this component of the Test Battery could provide interesting data if repeated during multiple testing sessions, possibly complemented with other memory tasks (verbal, spatial, etc.), and by analyzing the data more systematically.

Component 10. As most of the children knew the song long before testing, however, there was actually no learning process involved and the majority of participants were able to carry out this task without problems.

Component 11. Only one 10-year old boy said he did not like it and would not want to participate again. He had difficulties with the creative tasks such as singing a favorite song, completing a melody and inventing a song to a picture (in the end he did not perform any of them.) He studies guitar and sings in a boys' choir. All other children said they were happy with the testing and were willing to repeat it in the future.

4. Discussion

Discussion section will focus on interpreting important observations arising from the testing process and results to suggest possible improvements to the Test Battery. However, it should be remembered that this kind of testing process with children (especially preschoolers) can never be determined to the end in detail.

Singing is perceived as social and playful activity by children which influences their behavior during testing and researchers must always have an open mind to react accordingly.

The pangram in item 1 of the Test Battery is aimed at introducing to a test subject the phonological system of a given language, presenting her/him its complete inventory of phonemes in a single sentence. The relationship of a pangram to a test of musical abilities is not explicitly evident. Pangrams in different languages (and perhaps different possible pangrams even within a single language) may yield semantically different outputs. This is the case if we compare the English pangram ("The quick brown fox jumped over the lazy dog") in the original Test Battery (Cohen *et al.*, 2009) with the reverse translation into English of its Estonian equivalent, which was used in the present study ("This little miller can still jump on the train"). The English original has a funny nature. It can easily be accompanied by a picture or a video clip and this way make a good introduction in order to continue testing with a shy child. The Estonian equivalent has a more abstract content which may not be comprehensible to a child at first glance. It should therefore be asked which of the two functions of the first test component is more important in the Test Battery: either to introduce the phonological inventory of a language to the test subject or to introduce her/him to the task and to create a productive atmosphere for further work. It may prove impossible to follow both functions equally well in a language environment different from English.

We did not collect any background information about participants in the present study. A few questions about the child's age and possible musical activities were asked, but their replies were not verified by parents or teachers. There are musical aptitude studies that rely to a considerable extent on background information about the interviewees, which eventually make it possible to draw more thorough conclusions from the study. For example, in their cross-cultural study of comparing Estonian and Finnish gifted children on creativity, musical ability and environmental aspects, Ruokonen and Vikat (2005) conducted long interviews with children which focused on detailed descriptions of their everyday life, including their musical and creative activities. These interviews were complemented by questionnaires for the parents and teachers of the children interviewed, which enabled the authors to compare information obtained from three separate sources. It could be useful to add a questionnaire to be filled by a parent or music teacher to the AIRS Test Battery to verify and complement children's background information about their musical education and experience. Also domains like a child's temperament, motivation and home musical environment could be added to the questionnaire which then could be insightful for interpreting results. When testing small children (preschoolers) this kind of questionnaire can save valuable testing time and cut the time spent on opening conversation and focus on the actual singing exercises when the child's concentration is still high. In the present study, the average amount of time required for completion of the test was about 15-20 minutes. At least for preschoolers, this was too long, as many of them were unable to maintain the necessary level of concentration for this timespan. If the protocol

had included an extra interview or questionnaire in order to gather additional background data, it would have made the situation even more complicated than at present.

Item 5 of the Battery requires a child to execute two tasks: first to determine her/his favorite song and subsequently to perform it. It should be noted that the first task may turn out to be complicated even for a grown-up, as the category of 'favorite' can be interpreted in different ways (favorite for now or over a longer period of time, favorite in what genre). The proposition that everyone should have 'a favorite something' (song, color, animal, etc.) is debatable, as it presumes a hierarchical world-view of favorite and non-favorite categories, which seems to be culturally forced on us. After the determination of the favorite song, the next task is to perform the song. This task, in turn, is rather challenging, as children may like music of a complicated structure which cannot be easily imitated by solo voice alone. In general, easy nursery rhymes were chosen by those children frustrated by the task (just to "get it over with"), while those children who saw it as a challenge chose more complex songs. At the same time, our experience demonstrates that it may be hard to get a child singing something at all if (s)he happens to be shy. We would suggest simplifying this item and defining the task as one over which a child may have total control, e.g. to choose whatever (s)he likes for singing. One should remember that almost all other tasks in the Battery are imitational in nature or have strong guidelines about how they are to be executed.

The structure of items 3 and 6 is based on the imitation of examples presented, where the accuracy of pitch relations, rhythm, and melodic contour can be assessed. Tasks of this kind are common for children in the formal educational system as they coincide with the voice warm-up exercises done in music lessons or choir practices. One may wonder why items 3 and 6 have not been combined into a single item (or at least into a single package), but this may be explained by the need to balance easier (potentially more boring) items in the Battery with more complicated ones. Our experience shows that younger participants (e.g. a 4-year-old boy) may approach the latter type of task with spontaneous creativity, so that the assessment of exact precision is compromised. In this study, two 4-year-old boys (twin brothers) did not necessarily listen (or even wait) for the instructions in such tasks, but reacted spontaneously from the very beginning of the item. Instructions could in some cases prevent an outcome, as for example in test item 7, where both boys reacted with an improvisation immediately after (or even during) the presentation of the beginning of the melody for the first time, but after the second listening (having heard the instruction to 'make an ending') did not do anything, as if the command had 'killed the buzz' or awakened resistance to being subjected to authority. In certain instances, it seemed even that the test subject and the tester had exchanged roles, as the former made an attempt to take the lead in the process (e.g. by continually asking questions related or unrelated to the procedures of the Test Battery).

Attempts to conduct the Battery were also made with a 2-year-old girl, but the only two items she could complete were Nos. 3 and 5, so the data is not included in this study. This child comes from a recognized Estonian family of musicians and, as previous experience has shown, had in principle no problem in performing most tasks of the type included in the Battery. However, the attempt to make her perform the tasks according to the prescribed protocol of the Battery unfortunately failed. This situation prompts us to consider the primary purpose of the Battery. Is it aimed at assessing children's ability to perform its tasks or at assessing how children are able to follow the testing protocol? In the first case, the order of items and the specific wording of instructions should not be crucially important, and a test could be conducted depending on the specific circumstances of a given situation at that time. In the second case, the results and success level will depend on a child's familiarity with this kind of setting, which to a significant extent resembles a lesson in school (some participants have pointed this affinity out themselves). Consequently, children who already attend a school are expected to have an advantage over those who do not, irrespective of their age.

The results obtained indeed demonstrated that it was easier to follow the test protocol with those participants who had already been enrolled in formal education, were older, had a longer attention span, and were used to testing. As one of the aims of the AIRS project is to develop a Test Battery suitable for different cultures and subjects of different ages and at different levels of education, the original version (Cohen *et al*., 2009) may be considered perhaps a bit too challenging for preschoolers. Using the Bentley Measures of Musical Ability, Good *et al*. (1997) found a significant correlation in their study of better results with higher scores and age even when the age difference between two groups of participants was only one year (7- vs. 8-year-olds). They point out that musical ability may be only one of many cognitive functions being measured by this test, the other functions being task comprehension, working memory and attention. They also point out that, unless the instructions are in very simple language and the test does not presume other cognitive demands, the findings are likely to be limited in value.

In addition to levels of cognitive skills, a performance in musical tests is influenced by individual differences in affective and behavioral states during testing. Some children are shy, and it is not easy to say what a better solution for them might be: whether to follow a rigid testing protocol that structures the process and may therefore provide some comfort for the children, or to apply more playful techniques in order to ease the situation. Most of the testing for this study was conducted in a children's summer camp, and a line of participants was formed behind the testing room door. As the door was not completely soundproof, it was possible for the researcher to make some informal observations. There was a lot of communication between those children already tested and those waiting their turn. Those already tested generally did not want to reveal what was going on inside. However, some of them gave up eventually and presented some examples of the test items for their audience. Item 5 turned out to be the most frequent topic for

discussion (accompanied by such remarks as "Oh, my God, I do not have a favorite song!"), and spontaneous singing started as the children already tested shared their songs with others who were ready to join in. Children who were tested after this joint singing had taken place outside the testing room were considerably more relaxed, as they already had some idea about the test and had had time to prepare a song to be performed.

Although it was explicitly stated at the beginning of the testing that there were no 'right' or 'wrong' answers, it seemed that some children still suffered from performance anxiety. Self-confidence in testing situation varies individually. O'Neill and Sloboda (1997) showed in their study that children with high confidence improved their performance after a temporary failure while those with low confidence demonstrated helpless behavior after a failure. At the same time, they noted that not all children experienced low confidence after a failure and that self-awarded confidence ratings did not necessarily predict actual success in their performance.

In the context of this study, an epistemological question of how a song should be defined arose in connection with test items 7, 8 and 9. As was described earlier, for a participant a song could mean only lyrics, only melody, or lyrics and melody combined. In the Estonian language, the word 'song' (*laul*) does not have a specifically musical meaning, as it is used to indicate poems in oral or written form, epic texts, or even stories alongside singing in its narrower sense. *Laul* can be also used in the context of instrumental music, for example in kindergartens children learn to play new 'songs' on musical instruments (xylophones etc.) which do not include vocal singing at all. Results from component 8 in this study indicate that the meaning of the word 'song' (or, more precisely, its canonical translation into Estonian) may point to at least three different things: (1) lyrics, (2) melody, or (3) both lyrics and melody. An instruction to create a new song did not prevent some children from using a tune already known and improvising new words to go with it, or even from merely reciting a poem without a melody. This suggests that words may be more essentially related to the concept of a song than melody, which in some cases was borrowed without compunction. A song in our study may thus be projected on a continuum with spoken words at one end and words sung to a melody at the other. In such a situation, temporal regularity may become the primary instrument which helps a participant to decide whether a particular performance is labeled as a song or not.

Peretz and Coltheart (2003) have proposed a neuro-psychobiological model of processing singing, which expects the lyrics and the melody to be processed separately and in parallel. In test item 9, in which children were asked to learn a new song, the majority of them started the learning process by concentrating on the lyrics. This behavior agrees with a study by Hargreaves (1986), who observed that in the course of learning a new song, words are usually learned first, followed by rhythm, melodic contour, and intervals in the melody. Stadler Elmer (1994) argues that there could be other possibilities for sequencing these elements in the learning process, depending on a child's prior musical activities and experience at home. In the present study, we observed that children with extracurricular musical

activities generally used more varied strategies to learn a new song, e.g. singing it back right after the first hearing. One of the strategies for the participants, however, was to recite the lyrics first and to add the melody to them later, or to hum the melody separately without the lyrics. Welch (2005) presents data which confirm that children are usually very accurate in remembering the lyrics of a song but often struggle with performing its melody. In another study, Welch (2006) observed that children are more accurate in learning a melody if they rehearse it without lyrics but use neutral syllables instead.

When asked to finish a melody as in test item 7, some children first repeated the given phrase but some started the follow-up improvisation immediately. These results agree with those of the study by Adachi and Carlsen (1994), where children were also asked to complete a melody. They distinguished between two types of response: those which involved repetition and those which did not. A need to repeat a given phrase in order to finish it can imply the perception of the song as a coherent whole. However, it may also refer to a more mundane strategy of simply 'buying more time' before producing the intellectually more demanding (and consequently more stressful) improvisational part of the song.

Brother John is incorporated in two items (4 and 10) of the Test Battery. This song is widely familiar across different cultures and languages all over the world. In the present study, the majority of children were familiar with this song in advance, so that the majority of participants did not need even to repeat the song phrase-by-phrase in order to reproduce it. In conclusion it may indicate that item 10 in the Battery thus lost its purpose (which was to recall the song from memory). This item could therefore be made optional, limited only to those participants who needed to learn it phrase-by-phrase during the execution of the item 4. Even then the question remains whether a child required the phrase-by-phrase learning because (s)he did not know the song, or because (s)he simply wanted to reduce his/her anxiety and to delay the need to perform the whole song alone. Perhaps it would be useful to establish (for example during the introductory conversation) whether a child knows/has known this song, whether (s)he is used to performing it solo or as a canon, and whether the song could have been sung spontaneously or only in a music lesson initiated by a teacher. To maintain the original aims for components 4 and 10, maybe a different song could be used instead of *Brother John.* This could be replaced with an easy and structural song to differentiate from song used in component 9.

5. Conclusions

This pilot study addressed several research questions about adapting the items to a different culture and language environment, testing process and characteristics of participants.

On the basis of a pilot study with 26 children of adapting a Test Battery, developed in Canada for mapping the musical development of children of different

age groups, to native Estonian speakers in northeastern Europe, the following improvements may be suggested. Firstly, additional guidelines as to how to adapt the Test Battery for a culturally different environment should be added to the protocol in order to ensure its cross-cultural validity. Further elaboration of the basic concepts of the Test Battery seems useful, as cultural and linguistic traditions may differ considerably across different countries and thus bias the outcome. Secondly, in order to better interpret the results of the application of the Test Battery, it seems desirable to have some demographic and sociological background information on interviewees, in addition to the primary data from the testing itself. As carrying out the Test Battery in its original form may be a little too long and tiring, especially for younger children, the background information may be collected in additional interviews with the children's parents before or after the test, rather than with children themselves. As items on Test Battery are somehow similar with singing exercises in school, in its original form, Test Battery gives an advantage for children who participate already in formal schooling and are familiar with performing this kind of exercises. The participants' age seemed to have a bigger impact on performing Test Battery successfully than taking part in extracurricular musical activities. Finally, minor culture-independent improvements to a few items of the Test Battery may be suggested, relating to the concept of a song in general, to the extent to which children are able to explicate their favorite songs during the interview, and to whether or not musical memory can be assessed on the basis of a song already familiar to participants prior to the test.

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Estonian children's improvisational songs, the nature of performance and songs' coherence with the Western tonal musical canon

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Abstract
In this preliminary study, improvisational songs of 43 Estonian children (22 girls, 21 boys, M_{age} = 5.5 years, age range: 2–8 years) were collected using the AIRS Test Battery of Singing Skills (ATBSS). Improvisational songs from two tasks of the ATBSS (song completion and song creation) were evaluated by three experts according to the performance's coherence with the relevant criteria of children's songs in the Western musical canon (a song has a melody and a rhythm and ends on the tonic) and the spontaneity of the singing process. Combining these two parameters we could describe four types of songs. Due to the size and diversity of the sample, this article does not report statistical evidence to support the proposed typology, but rather reports trends in the results to provide new research questions for further research. The results show that most of the children in this study had acquired the rules of children's songs in the Western tonal musical canon by the age of four and could apply them in creative test-like situations, whether they did so consciously or spontaneously. Most of the children were consistent with their song-making strategies (conscious vs. spontaneous) during the two different improvisational tasks.

Keywords
ATBSS, children, rules of children's songs, song making, Western musical canon

In this article, we report the results of a preliminary study of 43 Estonian children who were tested using the test battery developed within the framework of the international project Advancing Interdisciplinary Research in Singing (AIRS) (Cohen, Armstrong, Lannan, &

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Coady, 2009). Improvisational songs from two tasks of the AIRS Test Battery of Singing Skills (ATBSS) were analyzed according to their coherence with the relevant criteria/rules for children's songs in the Western musical canon and the spontaneity of the singing process. We used original methodology to categorize improvised songs into four types. Due to the small sample size and the diversity of the sample, this paper does not report statistical evidence to support the proposed typology but rather reports trends in the results to provide research questions for further research.

Improvisational songs have always been a strong indicator for children's musical development and are thus used in studying this development. For creative tasks, such as making up songs or composing musical pieces for an instrument, our judgment strongly relies on what we consider to be expected in our culture. We anticipate hearing an organization of sounds that is familiar, yet original. A children's song seems to be quite simple in nature, but to describe it in detail, several levels of criteria must be considered. For example, Stadler Elmer (2015) has listed seven main principles and 21 rules concerning the temporal frameworks, pitches and lyrics of children's songs that apply to the German language environment. As Germany has had a great influence upon Western musical culture, these rules concerning children's songs are likely valid for other European language spaces, such as Estonia, and for cultures that are influenced by the Western musical canon. Stadler Elmer notes that the lyrics and melody in a children's song are two relatively autonomous generative systems that allow infinite possibilities for song creation. The rules (the whole list is not included here) include stable meter, even number of measures, phrases consisting of two or four measures that are repeated, stable key, rather small pitch range and small intervals, and notes having two different ratios of duration. A typical children's song to illustrate this set of rules is "Brother John" ("Frère Jacques"), which can be determined to be a standard for children's songs in the Western tonal music culture and is well known in many languages.

The first stages of a child's musical development are directly related to the child's overall development; for example, the development of voice-producing mechanisms and the ability to use one's singing voice (Rutkowski, 1990), language skills (Iversen & Patel, 2008), and even motor control (Gruhn, 2002, 2011). Research has shown that the context of a baby's vocalization influences how parents distinguish the vocalizations as either talking or singing (Adachi & Ando, 2010; Adachi & Ding, 2011; Adachi & Falk, 2012; Adachi & Gudmundsdottir, 2013). Musical expressions that are clearly recognizable as songs to other parents (meaning that at least some of the rules must be acquired and applied) are reported in case studies of children around 14–24 months of age (de Vries, 2005; Gudmundsdottir, 2015; Mang, 2005; Raju & Ross, 2015; Stadler Elmer, 2012a, 2012b, 2012c). The question of whether there is a universal trajectory for the development of singing or whether there are critical periods in the context of creative singing is still unclear, as there seems to be data to support both hypotheses (see, e.g., Cohen, 2012; Stadler Elmer, 2012c).

Previous works on children's improvisational singing and invented songs have focused on categorizing invented songs by their function in children's lives (Moorhead & Pond, 1941/1978), their content (Moog, 1976), and/or the target emotion expressed through singing (Adachi & Trehub, 2011). Some studies have described the developmental trajectories of invented songs (Bjørkvold, 1989) or tried to observe the song inventing process in a specific context (Barrett, 2006). Adachi and Trehub (2011) found differences in the song-making processes for Japanese and Canadian children. In their study, children were instructed to create a happy or a sad song. More Canadian (60%) than Japanese (40%) children produced a song in these circumstances, and most Japanese children simply reproduced a familiar song while Canadian children's creations included novel words, melodies or both.

With regard to spontaneity, the literature claims that singing is a vital part of play for children that can "happen" without previous planning. For example, Mang (2005) describes the activities of 3½-year-old Heidi: While drawing a nest with eggs, she described her actions to a researcher by alternately talking, singing about her drawing and singing phrases of a learned song. However, singing can also be a very thoroughly premeditated process. If a person has at least an approximate vision for how the song should sound, the endeavor to perform it can be effort-consuming and even evoke bodily stress reactions.

Method

Participants

Altogether, 43 children (22 girls, 21 boys, M_{age} = 5.5 years, age range: 2–8 years) participated in the study. According to their parents, none of the participants had any hearing problems. Children were recruited from two kindergartens in Tallinn and from among friends of the second author of the paper. Prior to the testing, all of the parents gave written consent for their children to participate in the study and filled out a questionnaire.

All but one child attended a kindergarten or a school (37 were in kindergarten and five were in 2nd grade at school). One 4-year-old girl did not attend kindergarten but was taught a musical instrument by her father at home. On average, participants had two music lessons per week in their kindergarten/school. Most participants were assessed as having creative personalities, according to their parents: 35 children were reported to invent songs by themselves while playing. Thirty-two children were reported to have no performance anxiety and were ready to perform voluntarily and with pleasure at recitals or home parties.

Materials and process

The AIRS Test Battery of Singing Skills (ATBSS) (Cohen et al., 2009) was used in this study. The test battery consists of 11 components addressing the different developmental aspects of musical and vocal abilities: (1) opening conversation, (2) determining the vocal range of the participant, (3) singing back a minor third, (4) singing/learning (if necessary) "Brother John" by phrases, (5) singing a favorite song, (6) singing back intervals, triads and scales, (7) improvising an ending to a melody, (8) inventing a song based on a picture, (9) singing back an unfamiliar song, (10) singing "Brother John" from memory, (11) closing conversation. The test battery was translated into Estonian, adapted to the local culture, and piloted in 2010 with 26 children (Raju & Ross, 2012). As the types of musical tasks in the test battery are generally used in music education in Estonia and are therefore familiar to children, there were no major changes made to the test battery after the pilot process. Some changes in the wording of the instructions were implemented to make all tasks as unambiguous as possible for the children. This article focuses on two components of the test battery: (7) improvising an ending to a melody and (8) inventing a song based on a picture, which will be subsequently introduced.

In Task 7, the assignment was to improvise an ending to a melody. A short, unfinished song (see Figure 1) was presented to a participant by the researcher using *la-la* ['lɑ.lɑ] syllables a few times depending on the participant's needs. The beginning of the melody presented to the participants consisted of the three lowest pitches on the major scale and had a 4/4 time signature. Three simple time values were used: minim, crotchet and quaver. This two-bar melody started with the tonic and ended at the third scale step.

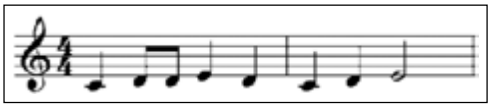

Figure 1. The unfinished song presented to the participant.

In Task 8, a child was asked to invent a new song that relates to one of the available pictures. Four iconic computer drawings were used: a heart, a flower, a sun, and an apple, each on a separate A4 format white card and colored brightly in red, blue and yellow, yellow, and green. The interviewer used instructions such as "Can you make a song to match this picture?" or "Can you describe what is in the picture by singing?"

Questionnaire

In addition to the activities conducted with the children during the test battery, all the parents had to complete a questionnaire (see Appendix) on the children's musical background. The information gained from this questionnaire was used to describe the participants as outlined in the above section. The first part of the questionnaire included quantitative background information about the child's involvement in music (e.g., the hours of curricular and extra-curricular music lessons per week). The second part of the questionnaire consisted of topics such as the child's attitude towards music studies, the musical environment at home, and an assessment of the child's creativity and her/his performance anxiety. Most of the questions were multiple-choice with an option for free comments if deemed necessary. This questionnaire was not part of the original test battery and was compiled by the first author of this paper. One of the objectives for including a parental questionnaire in the study was the hope of analyzing the results of the child's creativity and stage fright. Unfortunately, these categories did not form a solid basis for analysis, as almost every child was reported as being creative and bold by their parent. As participation in this study was voluntary and the questionnaire was handed out to the parents before their decision on the child's participation was made, it is very likely that shy children were excluded from this sample by their parents, and the results are therefore biased towards bolder and more creative children.

Procedure and equipment

Private individual testing sessions took place in the spring of 2012 on the premises of two kindergartens (27 participants) in Tallinn and at the Estonian Academy of Music and Theatre in Tallinn (16 participants). All 43 children were tested by the second author of this article. All interviews were conducted in Estonian, and each child was tested once. The average testing time for the entire ATBSS per child was approximately 11 minutes. All of the tasks of the ATBSS for which the participant had to repeat certain musical elements were originally sung by the interviewer with piano accompaniment in C major. No prerecorded materials were used. All sessions were recorded with a Canon Legria FS-30 video camera using the camera's built-in microphone. A synthesizer keyboard Yamaha PSR-E213 (grand piano mode) in the kindergartens and a baby grand piano in the Academy were used for the piano accompaniment.

The testing procedure was explained to each participant as a "music lesson" or simply as a proposal to "sing together a little bit." Those test components for which a child only had to repeat musical elements were referred to as "vocal exercises."

Data analysis

Every action for Task 7 and Task 8 in which the child did something that included vocalization elements (singing or rhythmical reciting) was included as a performance in this study. Performances were judged by the three authors of this paper (hereafter referred to as experts), with one expert's background being in musicology and the other two experts' in musicology and psychology. Two dimensions for each performance were developed. The song's coherence with the Western tonal musical canon was evaluated using three criteria: (1) whether the song ended on the tonic, (2) whether the song had a melody, and (3) whether the song had rhythm. These three criteria were rated using a 3-point scale, where "0" indicated that the given criterion was not present, "1" indicated that the opinion was mixed (expert could not be sure whether the criterion was present or not), and "2" indicated that that criterion was completely fulfilled. This way, the maximum total mark for the first scale was 6.

The second dimension was constructed to evaluate the performance process based on whether it was conscious and planned or spontaneous. Again, three criteria were used for the evaluation: (1) Did the child take time to think before starting to sing?, (2) Did the child comment on the composition process and/or ask clarifying questions during the process?, and (3) Did the child's actions during composition include the so-called security behaviors (i.e., was (s) he fidgeting, playing with hands, etc.)? These three criteria were rated using a 3-point scale, where "0" indicated that the given criterion was not present, "1" indicated that the opinion was mixed, and "2" indicated that that criterion was completely fulfilled. The maximum total mark for the second scale was 6.

The results of the above scaling can be presented by two numbers, whereby the first number shows how the song shows elements of the Western tonal canon and the second number shows how spontaneous the performance was. For example, a result of 6/6 indicates that the song ended on the tonic: it had both a melody and rhythm, and the participant was fully aware of the composition process. Furthermore, a participant's ability to carry a tune and the use of voice during the performance (singing voice vs. speaking voice) was evaluated using an analogous 3-point scale, where "0" indicated that the given criterion was not present, "1" indicated that the opinion was mixed, and "2" indicated that that criterion was completely fulfilled. Formal definitions for "carrying a tune" or using "singing or speaking voice" were not given, as every expert was expected to be familiar with these concepts by default.

During the developmental phase of this methodology, both scales (coherence with the Western canon and spontaneity) contained more criteria, but the piloting process showed that it was too difficult for the experts to concentrate on more than three criteria on each scale, with two additional parameters (carrying a tune and using singing vs. speaking voice). In order to diminish the number of criteria, it was decided to exclude the criterion for lyrics as all the performances already had a vocal part as a qualifying requirement for coherence with the Western canon scale. For the coherence with the Western canon scale, the criteria for stable key and meter and the even number of measures and repeated rhythmical figures were also excluded after the piloting process. For the spontaneity scale, some of the original criteria were merged to form the three main criteria of taking time, using verbal comments, and additional behaviors.

Every expert received a DVD with video recordings of the testing process and answer sheets to be filled out for each performance. The evaluation process was individual, and procedural rules (e.g., how many times a performance can be viewed) were not set. There were 38 performances collected for Task 7 (finishing a melody) and 30 performances collected for Task 8 (making a song to match a picture).

After merging the evaluations from all three experts into a single dataset, average marks for both scales were calculated for every participant. According to the average marks, the children's performances could be divided into four categories using the following typology:

Type 1 (the song does not correspond to the Western tonal musical canon and the performance is spontaneous): the average score for both scales is between 0 and 2.

Type 2 (the song does not correspond to the Western tonal musical canon but the performance is thoroughly premeditated): the average score for the first scale is between 0 and 2 and for the second scale is between 3 and 6.

Type 3 (the song is coherent with the Western tonal musical canon and the performance is spontaneous): the average score for the first scale is between 3 and 6 and for the second scale is between 0 and 2.

Type 4 (the song is coherent with the Western tonal musical canon and the performance is thoroughly premeditated): the average score for both scales is between 3 and 6.

Results

Descriptive results for Task 7 (Finishing a melody)

The task of finishing a melody had a high success rate: only five children out of the 43 refused to perform. Among the children who did not finish a melody were four boys (a 4-year-old, a 5-year-old and two 6-year-olds) and one 6-year-old girl. Most of the participants used the syllables *la-la* ['lɑ.lɑ] or *lal-lal* ['lɑl.lɑl], which are more common in Estonian children's repertoire, to finish their song; the syllables *li-li* ['li.li], *lu-lu* ['lu.lu] and *tral-lal-laa* ['trɑl.lɑl.lɑ:] were also used. One child created lyrics for the song as well. Five children used melodic elements from the song "Brother John", which is also an element of the ATBSS and was previously introduced to participants. One child solved the task by humming the theme song from the Simpsons' cartoon.

Descriptive results for Task 8 (Making up a song to a picture)

Out of 43 children, 30 completed the task correctly while 13 chose a picture but did not complete the task of inventing a song based on the picture. From the four pictures, the most popular were the apple and heart, as each was picked by 13 children. A flower was chosen in 11 cases and a sun in six cases. The most popular picture for girls was a flower (no boys chose this picture), and the most popular for boys was the apple. Three children preferred to replace their chosen picture with some other picture from the set after hearing the instructions to make a song about the picture.

Most of the participants (30) did something in response to the task to invent a song:

(a) 20 children invented a song consisting of original lyrics and melody.

(b) Seven children sang a pre-existing song familiar to them (from the Estonian children's repertoire), which was somehow related to the picture; there were performances of known songs in unchanged form and songs in which a child created some new material in addition to the original.

(c) Two children invented a melody of non-meaningful syllables but did not include lyrics.

(d) One child made a poem (only lyrics, no melody).

In general, when analyzing melodies and lyrics created by children, it can be said that the main focus in the song-making process seems to be on the lyrics rather than on the melody. Lyrics tend to be more original than melodies. Considering the content of invented songs, it seems that compositions by girls and boys are somewhat different. The girls were usually inspired by the emotions the pictures evoked for them: for example, for the picture of the heart, several girls chose to sing about their mother. Furthermore, the girls often used the Estonian word *armas* (lovely, darling) in their songs. The boys, however, seemed to be getting their song material from real life; for example, one boy sang about a heart being inside the human body and another sang about the planet Earth circling around the Sun.

Expert evaluations

Inter-rater reliability. For inter-rater reliability a single factor ANOVA was conducted using the Data Analysis package of the MS Excel 2013 (see Table 1). Together, eight analyses were carried out: three comparable groups consisted of the evaluations of each criterion given by each expert for both tasks. As all the experts evaluated the same video clips and used the same methodology, the null-hypothesis was formulated that there should be no significant differences between the overall averages and variances of the ratings. There were significant differences at the $p < .05$ level for evaluations on the participant's ability to carry a tune, $F(5, 102) = 4.95$, $p = .008$, for the usage of singing or speaking voice, $F(5, 60) = 8.74$, $p = .0002$, and for the existence of a melody in the improvised song, $F(6, 80) = 7.14$, $p = .001$. For the other five criteria (ending on the tonic, existence of rhythm, taking time to think, making verbal comments, and the presence of security behaviors) there were no significant differences between the evaluations by three experts. Figure 2 gives an overview of the experts' average points for each criterion evaluated.

Mixed opinions. The 3-point scales had a middle score ("1") to use in case the opinion about a criterion was unclear. Amongst all the evaluations (1632) experts gave in both tasks, the score "1" was used in 19% of evaluations (310 times). The score "1" was used most on the evaluation about the participant's ability to carry a tune (81 times). For melody ending on a tonic it was used 60 times, for the performance having a melody 47 times, for participant's usage of the singing voice 40 times, and for the performance having a rhythm 30 times. For the remaining criteria, this score was used less: presence of the behaviors (22 times), taking time before starting to sing, and verbal comments (both 15 times).

Experts' backgrounds. The expert with a background in musicology gave, on average, lower scores than the other experts (music psychologists) in two categories: carrying a tune and the existence of a melody in the song. For the evaluations of the child's usage of singing vs. speaking voice, one of the music psychologists gave, on average, lower scores than the two other experts.

Typology

Figure 3 shows the distribution of results between the four song types previously described according to performance spontaneity and coherence with the Western tonal musical canon for both tasks (finishing a melody and making up a song based on a picture). Most of the performances (60) fell nearly equally into the third and fourth category. Only eight performances can be described as non-coherent with the Western tonal musical canon. Performances that fell on the x-axis were counted as Types 2 and 4, respectively. The performance that fell on the y-axis was counted as Type 4.

Table 1. Results of the single factor ANOVA for inter-rater reliability.

Criterion	Source of variation	*SS*	*df*	*MS*	*F*	*p*	*F crit.*
Carrying a tune*	Between groups	5.01	2	2.51	4.95	.008	3.04
	Within groups	102.04	201	0.51			
	Total	107.07	203				
Using singing voice*	Between groups	5.216	2	2.61	8.74	<.001	3.04
	Within groups	59.94	201	0.30			
	Total	65.16	203				
Ending in a tonic	Between groups	2.54	2	1.27	1.87	.16	3.04
	Within groups	136.44	201	0.68			
	Total	138.98	203				
Melody*	Between groups	5.66	2	2.83	7.14	.001	3.04
	Within groups	79.57	201	0.395888			
	Total	85.23	203				
Rhythm	Between groups	0.42	2	0.21	0.83	.44	3.04
	Within groups	51.20	201	0.254756			
	Total	51.63	203				
Verbal comments	Between groups	3.89	2	1.95	2.13	.12	3.04
	Within groups	183.69	201	0.91			
	Total	187.58	203				
Behaviors	Between groups	4.04	2	2.02	2.29	.10	3.04
	Within groups	177.47	201	0.88			
	Total	181.51	203				
Time to think	Between groups	0.16	2	0.08	0.08	.92	3.04
	Within groups	187.43	201	0.93			
	Total	187.58	203				

Note. *Differences in the average ratings are significant.

The melody-ending task (no. 7) had four performances that did not correspond to the rules of Western tonality: two were sung spontaneously (Type 1) and two were sung in a more

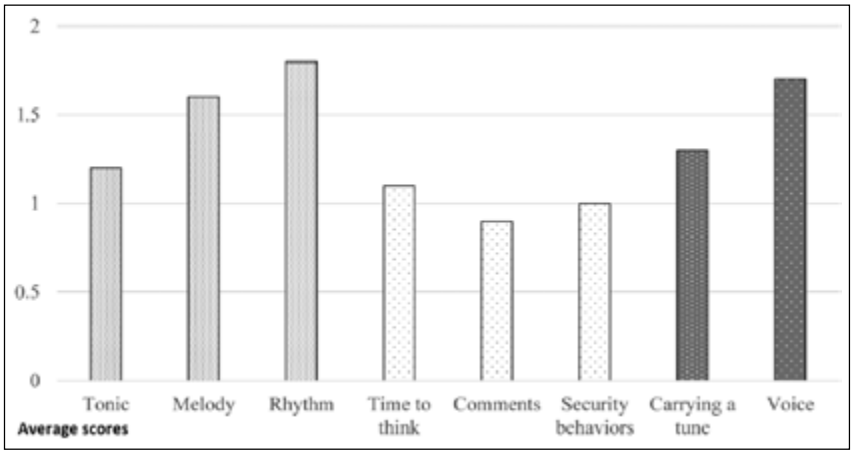

Figure 2. Experts' average points for each evaluative criterion. Maximum value of each criterion was two points, meaning the expert agreed that this criterion was present in the song. One point was given when it was hard to tell whether the criterion was present or not and zero points when the expert agreed that the criterion was not present in a song. For "voice," the lower scores given indicated the use of a speaking voice rather than a singing voice. Light grey bars indicate the criteria that were considered to describe a song's coherence with the Western tonal musical canon; white bars indicate the criteria for evaluating spontaneity of the performance, and dark grey bars are additional categories to determine singing quality.

planned way (Type 2). Most (18) of the performances for the melody-ending task aligned with Type 3, which means that they were coherent with Western tonality rules and sung more or less spontaneously; three of the performances fell in the middle between the spontaneity and planned process continuum. Sixteen performances were coherent with Western tonality rules, and the performance process was planned according to observations of the children's behavior during the singing process (type 4).

The task in which the child had to create a song based on a picture (no. 8) had a similar distribution of results according to the typology. One performance did not correspond to the rules of Western tonality and was performed spontaneously (Type 1). Three performances fell into Type 2, as the vocal productions were not coherent with the Western musical canon but the process was highly planned in nature, and one of the performances fell in the middle of the spontaneity and planned process continuum. Twelve performances were coherent with Western tonality rules and sung more or less spontaneously (Type 3). Fourteen performances were coherent with Western tonality rules and planned, according to observations of the children's behavior during the singing process (Type 4), and one performance fell in the center on the continuum regarding coherence with the Western musical canon.

Table 2 gives an overview of the distribution of performance typology according to the children's gender. For the melody-ending task, there were more girls who performed spontaneously (Type 3) and more boys who planned their songs (Type 4). For the other task, in which the child had to sing a song based on a picture, the gender differences were not as remarkable: the girls still tended to be more spontaneous (Type 3), but in Type 4, the results were equally distributed between boys and girls.

To illustrate and help readers understand the typology, one performance from each type is presented in Figures 4–7 using the musical microanalysis method from Stadler Elmer & Elmer (2000) for notations. The examples were chosen from the melody-ending task, as the syllables

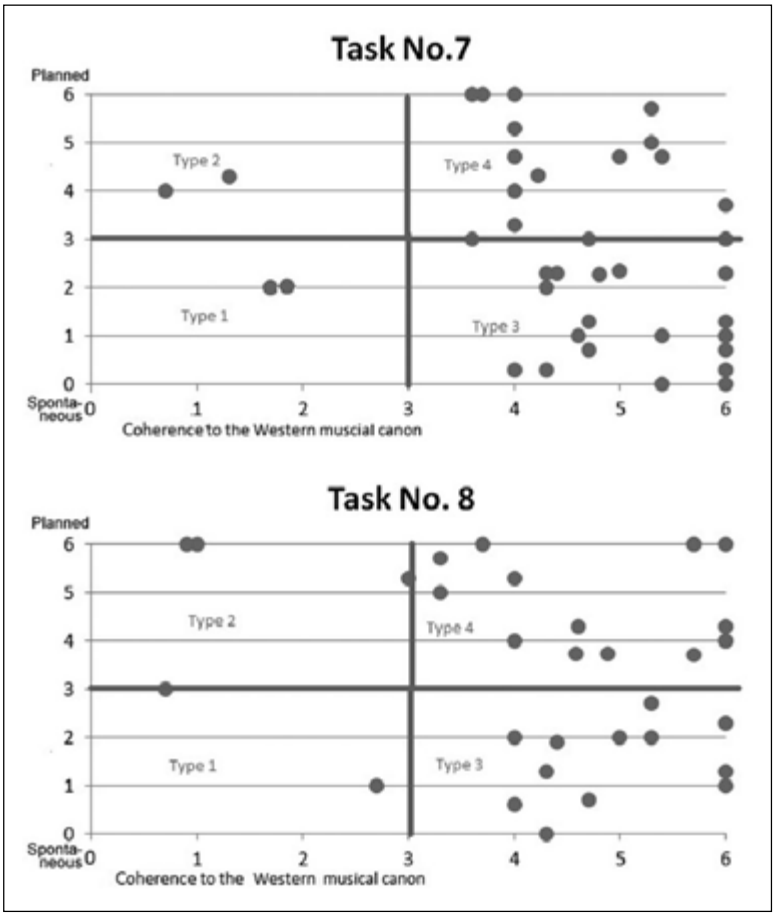

Figure 3. Distribution of results into four song types according to their coherence with the Western musical canon and the spontaneity of the singing process. Each grey dot represents one performance and is placed on the axes according to the average points given to it by experts. The x-axis represents coherence with the Western musical canon continuum and the y-axis represents the spontaneity and planned action continuum. The upper panel of the figure shows the results of the melody-ending task; the lower panel shows the results of inventing a song to a picture task. Performances that fell on the x-axis were counted as types 2 or 4, respectively. The performance that fell on the y-axis was counted as type 4.

Table 2. Distribution of results from both singing tasks according to participants' gender.

Song type	Finishing a melody No. of performances		Singing to a picture No. of performances	
	Boys	Girls	Boys	Girls
1	1	1	1	0
2	1	1	2	1
3	5	13	4	8
4	11	5	7	7

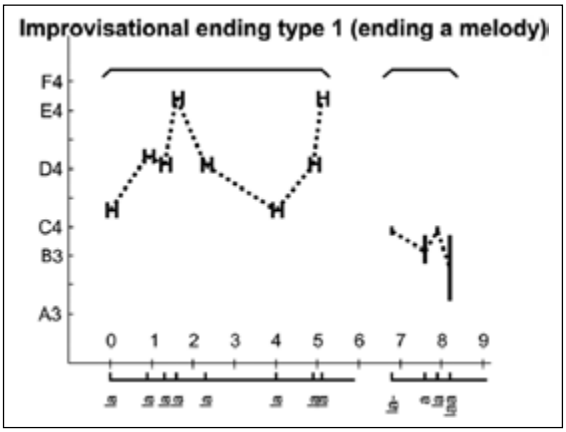

Figure 4. A 5-year-old girl finishes a melody in a way that is spontaneous in nature but does not correspond to the concept of a song in the Western tonal system. Child sings in a very quiet singing voice and produces only four syllables. Notation method by Stadler Elmer and Elmer (2000) is used to analyze children's performances. The y-axis represents the pitch continuum. The x-axis represents the time in seconds and the tucks below the x-axes show onset times of syllables. Symbol "H" refers to the syllables sung by the researcher. Vertical lines represent unstable pitches, but with a clear upward or downward glissando.

the children produced did not need to be translated into English, and the graphs are therefore more easily readable. Behavioral comments were added to the notations.

Figure 4 shows an example of the type of song (Type 1) that is spontaneous in nature but does not correspond to the concept of a song according to the Western tonal system as described earlier. A 5-year-old girl started singing immediately after hearing the phrase but used a very quiet singing voice (and prolonged vowels); she practically whispered and produced only four syllables. After she had finished, she looked down. It was hard to determine the key of this performance.

Figure 5 shows an example of a song that seems more planned (Type 2). After listening to the melody presented by the researcher, the child (a 6-year-old boy) sat and played with his hands and pulled his pants up (he sits on the floor). When he began, he did not use his singing voice but rather spoke the syllables in a very quiet voice; only three syllables could be counted as sung and had unstable pitches. He produced 13 syllables in total, which were divided into two phrases (breaths in between). Then, he said, "That's it!" We could say that the vocal product did not resemble a song as we are used to perceiving it in the Western culture, but the process was highly controlled. The child planned and decided to execute his specific task in a specific way.

Figure 6 represents a spontaneous song coherent with the Western musical canon (Type 3). A 6-year-old girl produced a melody in a clear singing voice, which corresponded as a "musical answer" to a "musical question" presented by the researcher, but changed the key from C major to G major. The child sung with rather stable pitches overall, except for the last note, which was hard to determine even with micro-analytical tools, as the pitch greatly swayed. The video recording showed that the child had a puzzled face and seemed to think hard about how to end the song, and therefore she tried to lower her voice as low as possible to reach the "right" pitch. The reason behind the key change, whether it was intentional or incidental, remains unknown, but it seemed that the concept of keeping key stability in the song was important to the child.

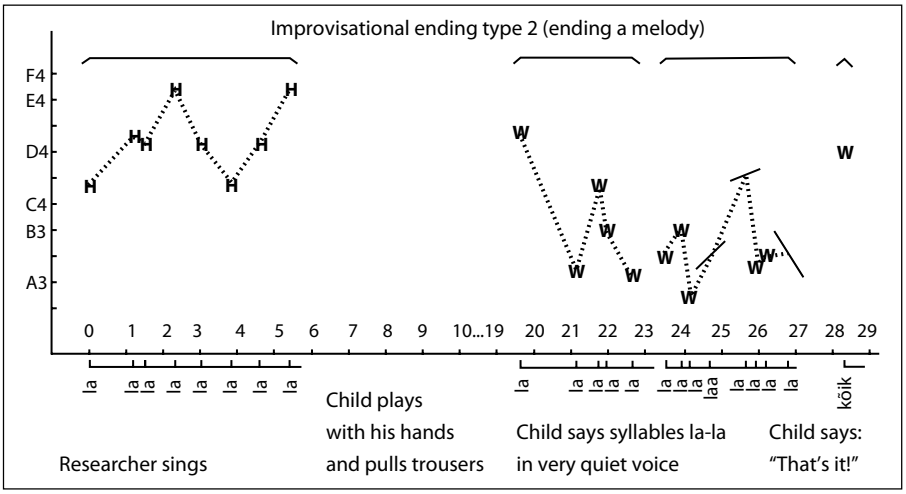

Figure 5. A 6-year-old boy takes time before starting to fulfill the task. He does not use a singing voice but only speaks the syllables with a very quiet voice; only three syllables can be counted as sung with unstable pitches. He produces 13 syllables, which are divided into two phrases (breaths in between). Then he says, "That's it!" Notation method by Stadler Elmer and Elmer (2000) is used to analyze children's performances. The *y*-axis represents the pitch continuum. The *x*-axis represents the time in seconds and the tucks below the *x*-axes show onset times of syllables. Symbol "H" refers to the syllables sung by the researcher. Symbol "W" refers to a pitch of the spoken syllable. Vertical lines represent unstable pitches but with a clear upward or downward glissando. Behavioral comments are added to the notations.

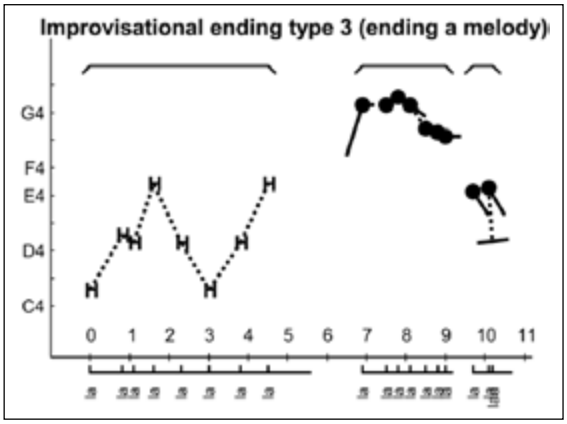

Figure 6. A 6-year-old girl produces a spontaneous song coherent with the Western musical canon using a singing voice. She changes the key from C major to G major. The child sings with rather stable pitches except for the last note. The notation method by Stadler Elmer and Elmer (2000) is used to analyze children's performances. The *y*-axis represents the pitch continuum. The *x*-axis represents the time in seconds and the tucks below the *x*-axes show onset-times of syllables. Symbol "H" refers to the syllables sung by the researcher. Dots represent stable pitches and dots with "tails" show the upward or downward glissando. Vertical lines represent unstable pitches, but with a clear upward or downward glissando.

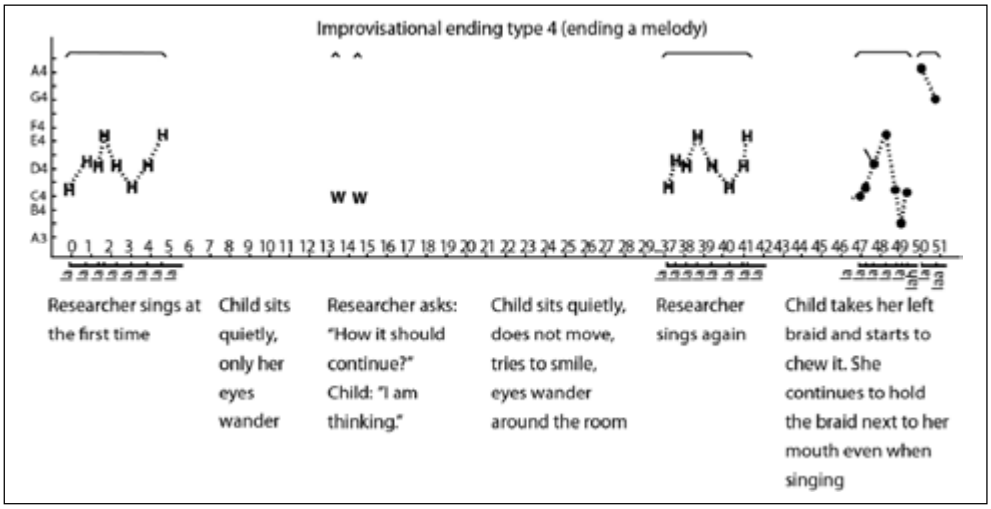

Figure 7. A 7-year-old girl takes time to plan her song. The beginning of the melody is presented twice to her before she begins to sing using a singing voice. She produces a melody that is coherent with the Western musical canon consisting of two phrases. The notation method by Stadler Elmer and Elmer (2000) is used to analyze children's performances. The y-axis represents the pitch continuum. The x-axis represents the time in seconds and the tucks below the x-axes show onset-times of syllables. Symbol "H" refers to the syllables sung by the researcher. Dots represent stable pitches and dots with "tails" show the upward or downward glissando. Symbol "W" refers to a pitch of the spoken syllable. Behavioral comments are added to the notations.

The example for the last song type (type 4) is presented in Figure 7. After listening to the melody, the child (a 7-year-old girl) sat quietly and did not move; only her eyes wandered around the room. The researcher asked, "How would this melody end?", and the child answered, "I am thinking." After a while, the researcher sang the beginning phrase once more. The child reached her braid and started to chew on it. The end of the braid remained in her mouth even when she eventually started to sing. She produced a melody that was coherent with the Western musical canon and was sung in stable pitches. The melody even had a so-called surprising element at the end: a short pause and then a leap from note C4 to note A4, ending on note G4 (dominant).

Two extra parameters were also evaluated for each performance – the child's ability to carry a tune and the use of speaking or singing voice when fulfilling the tasks. Table 3 shows the results of these parameters according to each type, including the average age of the participants in each group and their participation in extracurricular music lessons. None of the children whose performances fell into the 1st or 2nd type participated in extracurricular music lessons. Higher scores for fulfilling the criteria of the Western tonal musical canon in the composition were related with higher scores for the child's ability to carry a tune and his/her usage of singing voice.

Comparing performance on both components

The 30 children who fulfilled both singing tasks were generally consistent with their performance strategies in both assignments. The vocal productions of 17 children fell into the same category

Table 3. Characteristics of each song type of the produced performances.

Song type	No. of performances	Children with extracurricular music lessons	Children without extracurricular music lessons	Average age of participants	Estimation of carrying a tune (average points)	Estimated use of singing voice (average points)
1	3	0	3	5.3	0.6	0.9
2	5	0	5	6.0	0.0	0.5
3	30	8	22	5.8	1.2	1.5
4	30	10	20	5.6	1.4	1.8

(meaning that their concept of songs and behavior during the song-making process was stable). Thirteen children had stable song concepts, but their behavior changed from being more spontaneous in one task to being more planned in their performance during the other; there was one child who produced songs in types 1 and 2, and 12 children who produced songs in types 3 and 4. Only one child (a 5-year-old boy who participates in extracurricular musical activities) produced a highly planned song that was coherent with the Western tonal musical canon (Type 4) in the melody-ending task, but his performance was spontaneous in the singing about a picture task and did not resemble a song in the Western musical canon (Type 1). In this particular case, the reason seemed to be overall tiredness and boredom from the long testing procedure.

Discussion

When assessing children's improvisational songs, it is common to use expert evaluations. In our study, we used evaluations from three experts with somewhat different backgrounds in musicology and music psychology, and the experts had uniform opinions about most of the criteria. The three criteria that induced differences in opinion were carrying a tune, using singing vs. speaking voice, and a song's having a melody. For the two criteria carrying a tune and having a melody, the musicologist gave, on average, lower scores for the performances than the two other experts who had backgrounds in psychology as well as musicology. Because they normally focus on human behavior, the music psychologists may have had wider categories for judging the singing to be in tune and the song's having a melody. For the musicologist, who focuses mostly on the music itself, it may be easier to be more demanding in the evaluation of these criteria. However, this explanation does not apply to the criterion of using singing vs. speaking voice in this study, as it was one of the music psychologists who gave lower scores on average. For these two additional categories – carrying a tune and the usage of voice – no specific instructions were given on what to observe, which may also be a cause for the differences in the evaluations. In further research, the definitions of carrying a tune and usage of singing or speaking voice should be given.

The 3-point scales used in the study were binary in nature, but they included a middle point for a mixed option which experts could use if the evaluation about the presence of some criterion was uncertain. This option was used on one fifth of the evaluations which indicates that it is sometimes quite difficult, even for the experts, to assess the presence of certain criteria in singing. In further research, perhaps a more graded system would be appropriate: for example, a 4-point scale that does not allow the "middle" option.

Higher scores for fulfilling the criteria of the Western tonal musical canon in the compositions were related with higher scores for the child's ability to carry a tune and his/her usage of

singing voice. Although carrying a tune was evaluated in a separate category, it could have influenced the fulfillment of the criteria for the melody and ending on a tonic. If the child does not carry a tune perfectly, it can be challenging to implement his/her planned melody or end the song on a tonic, and therefore the child may have received lower points from the experts even if the "model" of the song in the child's imagination was composed according to the tonal rules.

The criterion for the rhythm being present in the performance had the highest average scores, and the experts' opinions were uniform on this matter. The cause of this uniformity may lie in the language: the vocal part of the performance influencing the structure of the song and giving it a rhythm. Although the presence of a vocal part was not included in the criteria of the Western musical canon, it must be remembered that it was indeed the qualifying criterion for the performance to be included in the study.

The two tasks had different success rates. For the melody-finishing task, the beginning was presented using non-meaningful syllables, and the child usually continued without even asking whether he/she should switch to meaningful lyrics. It was easy to concentrate more on the melody in this task. For inventing a song based on a picture, the child had to fulfill several successive tasks: first choosing a picture and then creating a song based on it. When we consider all the elements in the ATBSS, choosing a picture is a very different type of task because it addresses another modality (visual) in addition to listening and singing. All of the children were able to choose a picture and seemed excited for this change in the testing process: looking at the pictures, pointing out the favorite one, and even, in some cases, wanting to hold the chosen picture. However, when the instructions to create a song followed, considerably fewer children were able to complete this part of the task. The aim of using pictures was to prompt a story, and so there were challenges on two levels: to create a meaningful set of words and to produce this set of words in song. Although most of the successful performances fulfilled this expectation and had an original melody and lyrics, there were also other ways for children to execute this task: there were presentations of already known songs, of only a melody with non-meaningful syllables, and of only lyrics (poem citation). We had a similar division of results in this task as in our pilot testing with the ATBSS (Raju & Ross, 2012), and we concluded that the reason may lie in the Estonian language. In the Estonian language, the word 'song' (*laul*) does not have a specifically musical meaning, as it is used to indicate poems in oral or written form, epic texts, or even stories alongside singing in its narrower sense. *Laul* can also be used in the context of instrumental music; for example, in kindergartens, children learn to play new "songs" on musical instruments (xylophones, etc.) that do not include vocal singing at all.

Additionally, the lower success rate for the song-inventing task may be related to the duration of the ATBSS. Before this task, the child had already completed seven different elements in the battery, including singing his/her favorite song and finishing a melody, which demanded a high level of concentration. Perhaps if this task had been presented earlier in the ATBSS, it would have resulted in a higher number of children completing the task.

We can also speculate on whether the results were influenced by the Estonian (singing) culture as well. When comparing the results with Adachi's and Trehub's (2011) work introduced earlier in this paper, we can see that Estonian children seem to be more similar to their Canadian peers than to children in Japan; their performances included more variety in completing the song-inventing task, as was reported for Canadian children.

All but one of the children had formal education and had, on average, two music lessons per week. Music lessons in kindergartens offer regular joint singing and other musical activities. This could have influenced the results in that many songs fell into the 3rd and 4th types and that none of the 4-year-old participants performed songs that were not coherent with the Western musical canon. Even the performance of a 2-year-old participant received enough

points to be categorized as the 3rd song type. Due to the size and variety of the sample, these results do not have statistical significance, and far-reaching age-related conclusions cannot be made. Most of the children were consistent in their song-making strategies (conscious vs. spontaneous) during both improvisational tasks. However, there were also children whose vocal productions were musically similar during both singing tasks but whose behavior changed, meaning they were spontaneous in one task but planned ahead in the other. This observation is also worth testing with a more representative sample in further research.

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Appendix

Questionnaire for parents

Before testing, we ask you to answer a few questions about your child's musicality. Information provided in this questionnaire is considered during the testing process and when interpreting the data. During analysis the data will be anonymized.

1. Name of the child ..... code (researcher notes) .....
2. Age.....
3. Language of communication .....

4. Does the child have any known hearing disabilities, hearing loss?

□ no
□ yes – please specify
.....
.....

5. Does the child attend

□ kindergarten
□ school, please specify in which grade .....
□ Does not attend to kindergarten or school

6. How many music lessons does the child have in kindergarten/school per week? .....

7. Is your child involved in additional music lessons? Learning an instrument or singing in music school or with private teacher, attending to some music group or choir practices?

□ no
□ yes – please specify (singing and/or instrument study, how many lessons per week)
.....
.....

8. If you answered "yes" in the previous question, how does your child feel about music lessons?

□ attends happily, he/she is self-motivated
□ he/she is not very interested, needs external motivation
□ he/she is involved in music against his/her own will, only at the request of parents
Please specify (if needed)
.....
.....

9. Does your child practice singing/instrument at home?

□ no
□ yes – please specify, how many hours per week
.....
.....

10. Are any of family members living with the child actively involved with music (singing, playing musical instruments)?

□ no
□ yes, please specify
.....
.....

11. Does your child invent songs, for example, while playing?

□ yes
□ no

12. Does your child have performance anxiety? (singing or playing an instrument at school recitals or performing at home parties)

□ no, he/she performs with pleasure, voluntarily
□ needs persuading, does not perform voluntarily
□ refuses to perform in public
Please specify (if needed)
.....
.....

IV: Raju, Marju; Välja, Laura; Ross, Jaan (forthcoming).

How the musical culture is reflected in the choice of favorite songs of Estonian children.

AIRS Book.

PUBLICATION SUBMITTED TO THE AIRS BOOK (2015)

How the musical culture is reflected in the choice of favorite songs of Estonian children

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Author's Note

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Abstract

The AIRS Test Battery for singing skills (ATBSS) (Cohen, et al 2009) was adapted and translated into Estonian and used during 2010-2012 to collect data from 69 children (39 girls and 30 boys; M_{age} = 6.9 years; age range: 2-12). This chapter presents an overview of the results for children´s favorite songs collected with the ATBSS. The results are discussed in the context of Estonian culture. Estonia is known for its "singing revolution" and the tradition of Song Celebrations (SCs), which dates to 1869. Music lessons with professionally trained music teachers are part of the national curriculum on every level of the education system from kindergarten to gymnasium. Although Estonia has a rich, living national singing tradition, influences from Western popular music dominate the everyday musical soundscape. The analysis of children´s favorite songs revealed that most children choose to perform children´s songs. The songs were primarily sung in Estonian but also in English, French and Russian. The educational system and the SC tradition probably influenced the choice of favorite songs because many songs collected in this study are included in the national syllabus for music classes or belong to the SC repertoire. The historical span represented by the songs was long, reaching from the 18th century to the present. However, no songs from the 1940s and 1950s were chosen. This finding reflects Estonian cultural history. At the beginning of the Soviet occupation, the children´s repertoire from previous periods was not allowed to be used in music education, and there was a severe lack of new songs. Composers worked under strict restrictions regarding subject matter and compositional techniques to achieve the requisite socialist realism in their compositions. These circumstances improved somewhat during the 1960s, and a number of songs from that period were present among the songs collected in this study. In addition, among the songs were several that are known in many languages, for example, *Happy birthday to you*, *The big old deer* and *Hickory dickory dock*.

Introduction

One important aim of the AIRS initiative is to advance research on singing with respect to cultural differences. Like language, music is common to all cultures, and singing is known to all humans. However, the traditions of where and what to sing and the songs themselves differ according to culture and region. As a synchronizer, music exerts strong psychological power (for example, see Dunbar, Kaskatis, MacDonald, & Barra 2012). Therefore, it is has always been used as a tool for organizing people's feelings, actions, behavior and thoughts. Music also enhances social inclusion, and participation in music correlates positively with a person´s self-concept (Welch, Himonides, Saunders, Papageorgi and Sarazin, 2014).

Since the beginning of the 19th century, music has been a defining aspect of European countries. In addition to being expressed in our appreciation of our national composers and our predilections for certain songs or compositions and musical instruments, in Estonia, the activity of (joint) singing is also strongly charged with the essence of "national identity". Estonia is a small country on the Baltic Sea. According to Statistics Estonia[1], as of 1 January 2015, the population of Estonia was 1.313 million, which makes it the fourth-smallest country in the European Union. Kants and Realo (1999) stated that for an ambitious social researcher Estonia remains a "hot potato". That is, post-Soviet for some, Western for others, Estonian culture combines traits of Finno-Ugric, Nordic and West-European traditions that were capable of surviving half a century of suppression. Within the Estonian population, there are two large ethnic groups: Estonians (67%) and Russians (24%). The Estonian language belongs to the Uralic language family and is similar to Finnish.

Tradition of Song Celebrations. Estonia has earned the title of "singing nation" for its tradition of Song Celebrations (SCs). The tradition of Baltic SCs is now inscribed on UNESCO´s Representative List of the Intangible Cultural Heritage of Humanity. The SC tradition originated in Germany and was adopted at approximately the same time in all three Baltic states due to the large, influential local German community (Lippus, 2002). The first Estonian SC was held in 1869 to celebrate the 50th anniversary of the abolition of serfdom in Estonia. Before 1869, a number of smaller German song festivals and joint singing events

[1] Statistical database. Population - Population indicators and composition - Population figure and composition http://www.stat.ee/sdb-update?db_update_id=16202, Retrieved Jun 29th 2015.

were held in Estonia. However, the 1869 first song festival was the first to include participants from across Estonia and to include songs (although adapted from German) performed in Estonian. Siitan (2009) notes that when discussing the history of the SCs, the complexity of the historic circumstances must be recalled. That is, at the time of the first SC, Estonia was part of the Russian Empire. Therefore, all of the participating ethnic groups, including the local German community, were in fear of losing their cultural identity. According to Siitan (2009), the idea of the German Republic also developed significantly within the male choir movement, which was active in Germany and in the Baltic states in the German community. The Germans had strong male choral singing groups who sang national songs, and the Estonians adopted this tradition of choral singing and its repertoire, which was translated to Estonian. Because the tradition of choral singing spread widely and the SCs demanded new repertoire material, musicologists view the institution of the SCs as a landmark in the emergence of an authentically Estonian art music that required music composed in Estonian and for Estonians. According to Lippus (1995), before the SCs, music of primarily Estonian origin was folk music. However, the need for "our own music" to be sung at the SCs encouraged Estonian composers to write Estonian choir music. After Estonia declared its independence in 1918 (the nation was recognized as a state *de iure* by other countries in 1920 following the Tartu Peace Treaty), the SC tradition caused heated debates during the 1920s and 1930s because of its German background and its repertoire, which was also of German origin (Siitan, 2009).

The SC tradition has never ceased, even during the Soviet occupation that followed World War II. Although the entire repertoire was censored, composers still found opportunities to hide messages of hope for freedom in their songs. It is an interesting phenomenon that the Communist Party viewed the SCs as an important means to unite the various Soviet nations and thus to spread a message that completely contradicted the original idea of the SCs. A propaganda booklet emphasized that beginning in 1947 the state would be the event's sole sponsor, that "no concessions [would be made] in artistic standards" (which implied that the quality of previous SCs had been poor) and that children´s and women choirs would be included as well as organized contests for musical pieces that "make good use of the gigantic united choir" (Ratassepp, 1985).

Singing Revolution. In August 1988, in the evenings, spontaneous gatherings and joint singing occurred at the Song Celebration Grounds. Later, these events were referred to as *Öölaulupidu* (Night song celebration) or the Singing Revolution and are associated with

Estonia´s regaining of its independence in 1991. "Estonia[2] sung itself to freedom" is a sentence that circulated even in the serious political arena. Of course, both in 1918 and in 1991, a politically favorable environment was the primary reason for Estonia's declaration of independence. However, in people's minds, it was the joint singing that played the romantic savior's role for the nation. Guntis (2014) emphasizes the nonviolent aspect of the Singing Revolution in all three Baltic states. However, the repertoire of the organized or semi-organized concerts that were held between 1988 and 1991 included songs that called for violence toward the enemy and songs with nonviolent content. Guntis (2014) also notes that people sung considerably more during that period and spontaneously, for example, as they walked in procession to the concert grounds. In addition to political or war songs, songs about love and marriage as well as children´s songs were sung spontaneously during the mass gatherings. Brokow and Brokow (2001) demonstrate the importance of the Singing Revolution as a tool to market Estonia´s identity both internally and externally: "Although the Soviet Union did not grant liberty to Estonia because Estonians sang well, the singing revolution of Estonians has contributed in important ways to promoting the social marketing goals of independence, a united national character, and the usefulness of peaceful protest within the country and abroad."

Current organization of the SC. According to the Estonian Song and Dance Celebration Foundation[3], an SC typically includes approximately 1000 musical collectives and 25 000 participants (choirs, folk dancers, brass bands, folk ensembles). Together with the numerous audience, the celebration involves on average of approximately 100 000 people[4]. An SC starts with a five-kilometer parade from Tallinn Old City to the Song Celebration Grounds by the sea. Typically, there are two six-hour concerts (and two or three dance performances) over two days. The SCs are broadcast live in full on national television and radio and recently also on the Internet. Thus, it would be difficult not to notice or experience an SC at least to some extent if one is present in Estonia at festival time. According to the study by Lauristin and Vihalemm (2013), 51% of Estonian population have participated in SCs as a singer, dancer or/and in the audience and 90% have watched the broadcasts; only 9% of the population have not had any experience of the SCs.

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[2] People tend to forget that the case was the same for Latvia and Lithuania.
[3] http://maa-ja-ilm.laulupidu.ee/ajalugu/laulupeod/, retrieved 07.07.14.
[4] The most recent SC (2014) exceeded the previous attendance record with its nearly 200 000 participants and audience members, which represents more than 10% of the Estonian population.

An SC is typically held every five years. For each SC, the theme is selected and the repertoire is compiled using a creative contest organized by a national foundation. Usually, there are a number of specifically composed new songs but also several popular and beloved songs, which facilitate joint singing with the audience. In addition, a special Youth SC is held in the years between SCs to include additional school choirs and to train children to be willing to continue with choral singing later in life and participate in the regular SCs. The training is effective. There are more participants from one SC to the next, and the standards for the choirs become higher, as does the complexity of the repertoire. From the perspective of the general public and the press, the SCs and Youth SCs are viewed as equally important. The Youth SC repertoire includes more children´s songs. However, a portion of the repertoire (e.g., national songs) is the same as that of the regular SCs. There are several songs that have been sung since the first SC, which every Estonian knows by heart. The repertoire typically includes arrangements of well-known and popular national songs (including children´s songs) and old and new songs from Estonian composers. There have also been choir arrangements of popular hits. The nature of the songs is mostly national, with emphasis on the importance of remembering Estonia´s history and creating a feeling of togetherness with the audience. However, there are also songs that are bright and easy and included simply to facilitate joint singing and to celebrate the event. Since Estonia joined the European Union in 2004, the ideas of equal opportunity and the inclusion of minorities have slowly entered the Estonian political agenda. It must be noted that the most recent SC (2014) was criticized because the program only included songs in Estonian[5] and because only approximately 3% of the participants were Russians (Jevdokimov, 2014; editorial from *Õhtuleht*, a large daily newspaper in Estonia). Today, the SC institution, which was initiated to express the striving of Estonia to be acknowledged as an independent nation and then used for propaganda by the Communist Party to unite the various nations of the "great homeland", stands at a crossroads. Will the SCs be a tool to keep Estonian nationalistic ideals alive, or will the SCs be used to support integration into the "new Europe" and the adoption of its values? Lauristin and Vihalemm (2013) concluded from their survey, that attitudes and expectations towards the institution of SC differ according to people´s age, gender and direct involvement in the event as a singer or

[5] Since 2002, there have been two SCs at which the repertoire was performed only in Estonian: 2007 and 2014. The programs of other celebrations (2002, 2004, 2009 and 2011) included songs in English and Latin (religious songs). No Russian songs have been sung at an SC since the fall of the Soviet Union. Even during the Soviet occupation, the SC repertoire was mostly performed in Estonian although the songs were often adulatory of communism.

dancer. Although the vast majority (72%) of people emphasize the importance of the SC as Estonian national ritual and perceive it as an expression of the Estonian nationality (82%), these factors are not as important for the younger age group (15-34) who see SCs more like a social festive gatherings and are more open to include foreigners to the event as participants, audience or authors of the repertoire.

Music under the Soviet occupation. World War II was accompanied by a substantial human migration, including individuals who voluntarily fled the war (numerous Estonians left for Sweden, the United States of America and Canada) and mass deportations to Siberia. Both emigration and deportation greatly affected the Estonian intelligentsia: composers, writers and artists. At the end of the 1940s and during the 1950s, Estonian culture was highly oppressed by the Soviet regime. Following Stalin's death in 1953, the circumstances improved during the 1960s. Under the Soviet regime, Estonian composers, writers and artists were not free to express themselves in their creations. All new compositions had to correspond to the theory of socialist realism. According to Vaitmaa (2000), this theory was never defined in detail for music but was described as a method that is based on a truthful recognition of historical events. To ensure compliance with this requirement, vocal compositions were preferred to instrumental music, and titles, lyrics and librettos had to be ideologically "correct". All new compositions had to be approved by the Composers Association. So-called Western influences in compositional technique were banned. For example, moderate dissonance was allowed only to portray a negative character in a story, and a number of musical instruments were disfavored for their "reputation" (Vaitmaa, 2000).

Concerning the children´s repertoire, Kiilu (2010) writes that songbooks published before World War II were pronounced unfit for use, and faced with a need for new songs, most of the repertoire was created by the kindergarten teachers themselves and shared with colleagues. However, Selke´s (2007) analysis of music curriculums in 1917-2002 showed that in 1950s, there was still up to 44% of the pre-war repertoire in the songbooks used in national educational system. During Soviet period, composers were specifically ordered to create children´s songs, but as Kiilu (2010) notes, few composers were able to offer songs suitable for young children. "Suitable" can mean different things. For example, perhaps certain songs had too wide a pitch range for children or their melodies or rhythmical figures were too difficult. Perhaps the problem was the subject matter and lyrics of the songs. Composer Veljo Tormis (2000, cited by Kiilu, 2010) recollects that when composers were ordered to create children´s songs, they could not choose the lyrics themselves. Music education was view as

an ideological means to raise proper "Soviet people", and even children´s songs thematized, for example, bloody war victories, the Red Army, Lenin, and life on sovkhozes. These topics can be too abstract or terrifying for children. In addition, it may be presumed that teachers and parents had negative attitudes toward this "suitable" repertoire and did not necessarily encourage children to sing the songs more than was required for special celebratory occasions.

The lack of a suitable children´s repertoire resulted in circumstances in which children often sang non-age-appropriate popular adult songs. In response, the National Broadcast Agency produced the special television song contest *Entel-tentel* for children in 1968, in which a young soloist performed live with a band (Suurväli & Linna, 2004). The producers of this TV program have stated that although the children´s songs especially written for the show were popular, they encountered problems with the Composers Association, for example, for using saxophone in the accompanying band and therefore "violating the musical taste of young children" (Suurväli & Linna, 2004). A number of the songs from that TV program remain popular today. The subject matter of these songs relates strongly to the everyday life of young children, e.g., playing with a teddy bear, rocking a doll to sleep, having a bath. Although the tendency of children to sing adult songs during the Soviet period is explained here with the lack of a suitable, age-appropriate repertoire, the explanation more likely also involves their wide exposure to adult songs, which has not changed over time. Radio and television primarily broadcast adult songs, and children´s songs are limited to special programs. Therefore, children inevitably hear more adult than children's songs and therefore may favor them. Stadler Elmer (2015) has listed the main principles and rules of the temporal framework, pitches and lyrics of German-language children's songs. Because Germany has had a substantial influence on Western musical culture, these rules are probably valid for other European cultures that have been influenced by the Western musical canon. The rules (the list is not given here in detail) include a stable meter, an even number of measures, repeated phrases of two or four measures, a stable key, rather a narrow pitch range, small intervals and notes with two different ratios of duration. Generally, it can be stated that the same rules also apply to popular adult songs. Thus, for children, the difference between songs aimed at them and songs aimed at older individuals may be not clear.

Popular music in Estonia. Although the SC repertoire is primarily sung in Estonian, the popular music scene presents a different picture. For example, in 2013, of the top 100 songs broadcast on the Estonian radio station *Raadio Uuno*, only 29% were sung in Estonian.

A total of 71% were sung in English, and songs in any other language did not make the list. The ranking included only 33 Estonian bands/artists. However, a number of these groups also sang in English. Twenty songs included in the Nielsen SoundScan (USA) ranking *Hot 100 songs: 2013 year-end charts* also appeared in the Estonian ranking. We can conclude that most of the popular music heard on the radio is not of Estonian origin. In addition, in certain cases, Estonian popular music is produced and performed in English.

Music education. As previously stated, Estonians value music as an important aspect of their national identity, and therefore, music education in Estonia has a long tradition. During history, several methods have been used to teach singing and other musical skills in kindergartens and schools (Selke, 2007; Kiilu, 2010). Music is integrated into the Estonian compulsory education system from basic education in kindergartens to the gymnasium level, and music teachers on every educational level are professionally trained. By the end of their mandatory studies, most children understand the basics of how to read sheet music and have experience singing in a choir. The musical repertoire in the curriculum includes old Estonian traditional (runic) songs, children´s songs by Estonian composers, adaptions of foreign children´s songs and popular national and international songs. After leaving the compulsory educational system, it is common to continue singing regularly. According to the Statistics Estonia, in 2009-2010, 5.2% of male and 11.2% of female Estonians practiced singing at least once a week. In 2014, 47 095 individuals were registered members of singing collectives (57% children, 13% young, 26% adults and 4% seniors) [6].

Studying favorite songs. Although discussing favorite songs is common, the arena poses difficulties for scientific research because it permits research questions on several levels. For example, is it necessary to only name one´s favorite song, or must the research participant also be able to sing it? If the song must be sung, which requirements must be met to analyze the performance? Cohen, Bailey and Nilsson (2002) asked elderly Canadians (320 participants; mean age 78 years) to name their favorite song in a questionnaire. The task proved to be challenging: only 58% of the participants provided an answer. Approximately half of the songs that were named were popular songs from the decades during which the participants were approximately 33-35 years of age (i.e., in early middle age). Other songs that were mentioned were religious and traditional songs and a small number of examples from classical music. In a recent study on Brazilian children in Brazil (N = 24; mean age 7.5

[6] Statistical database. Social life - Culture – Amateur cultural activities (Tables CUT59 and CU62), retrieved Aug 4th 2015.

years) and Latino children in the United States (N = 24; mean age 7 years), Ilari and Habibi (2015) asked for each participant's favorite song and provided a chance to sing it. Although these two comparative samples are spatially distant from one another, the results for the samples were similar. Most of the children could name their favorite song. Only three Brazilian and six U.S. Latino children stated that they do not have one. A majority of children (76% in the Brazilian sample and 54% in the US sample) stated that their favorite song is a contemporary popular song. Additionally, songs from movie soundtracks and children´s songs that were learned at school were mentioned. Of the popular songs, most were in English and not in the children´s mother tongues (Portuguese or Spanish). Notably, whereas most of the children reported having a favorite song, only six children from Brazil and four from the US agreed to sing the song to the researchers.

In this chapter, we analyze the favorite songs of Estonian children in the context of Estonian musical culture while considering the following observations from the introduction:
- singing is a defining aspect in Estonian national history, and the SC tradition has substantial importance for Estonians with respect to defining themselves and their country;
-the SC tradition is supported by high-quality music education in every level of the educational system, in which the habit of choral singing forms that continues throughout life;
-although the SC tradition emphasizes Estonian music, popular music in Estonia is primarily produced and listened to in English.

Method

Participants. The AIRS Test Battery for singing skills (ATBSS) (Cohen et al., 2009; Cohen 2015) was administered to collect data on children´s singing skills in Estonia in 2010-2012. Data were collected in two rounds: first a pilot study with 26 children and subsequently the main study with 43 children. For this analysis, both samples were combined, which resulted in a total of 69 children (39 girls and 30 boys; M_{age} = 6.9 years; age range: 2-12 years). Only one 4-year-old was not attending kindergarten. All of the other children were attending kindergartens or schools according to their age[7]. Most of the participants were native speakers of Estonian. Only three children (two five-year-old boys and one 8-year old girl) were bilingual. That is, their mother tongue was Russian, but they were attending a kindergarten or school at which the language of instruction was Estonian. More than half (61%) of the children had no special musical training except participation in music lessons in

[7] In Estonia, mandatory schooling starts at age seven.

kindergarten or at school. Others (39%) were participating in additional, extracurricular musical activities. In the case of 33% participants, one or more cohabitant family members (parents, grandparents and/or siblings) were also involved in musical activities.

Procedure. The data were collected by this chapter's first and second authors. All of the private individual testing sessions were held in Tallinn: at a children´s city summer camp (26 participants), in two kindergartens (27 participants), and at the Estonian Academy of Music and Theatre (16 participants). All of the interviews were conducted in Estonian, and each child was tested once. In the tasks in which the participant had to repeat musical elements, the elements were sung by the interviewer with piano accompaniment in C-major. No prerecorded materials were used. All of the sessions were recorded with a Canon Legria FS-30 video camera using the camera´s built-in microphone. A Yamaha PSR-E213 synthesizer keyboard (grand piano mode) or (at the Academy) a baby grand piano was used for the piano accompaniment. To the participant, the testing procedure was referred to as a "music lesson" or a proposal to "sing together for a little bit". The test components in which a child only had to repeat musical elements were referred to as "vocal exercises".

Material. The ATBSS consists of 11 components that address the different developmental aspects of musical and vocal abilities: (1) an opening conversation, (2) determining the vocal range of the participant, (3) singing back a minor third, (4) singing (or, if necessary, learning) *Brother John* by phrases, (5) singing a favorite song, (6) singing back intervals, triads and scales, (7) improvising an ending to a melody, (8) inventing a song based on a picture, (9) singing back an unfamiliar song, (10) singing *Brother John* from memory and (11) a closing conversation. In this chapter, only the results from the 5th component of the ATBSS are presented and discussed. Component 5 of the ATBSS requires the participant to perform her/his favorite song without instrumental accompaniment. If a child does not have a favorite song, another song can be chosen, for example, a song learned at school or heard on the radio. The aim of this component is to have the participant sing a song of his/her choice.

Most of the elements in the ATBSS are designed to be culturally neutral[8] and therefore are easily adapted to different languages and cultures. However, the task of singing one´s favorite songs affords a glimpse into the cultural and musical environment of the participant. It must be noted that the "favorite" song may not be the actual favorite song of the participant

[8] However, the musical tasks of the test battery use the Western musical canon as a reference.

at the time of the test. However, it is definitely a song that the child feels comfortable mentioning and performing in a testing situation.

Process of analysis. All of the collected favorite songs were identified and categorized. Then, the list of songs was compared (1) with the repertoire performed at the SCs and (2) with the songs included in the national syllabus for music for the 1st, 2nd and 5th grades. The *Eesti Laulu- ja Tantsupeo SA* (Estonian Song and Dance Celebration Foundation) website (www.laulupidu.ee) was used as a source for analyzing the programs of all SCs and Youth SCs. The songbooks by Anier, Muldma and Selke (2009), Anier and Muldma (2010) and Karp (2003) for the 1st, 2nd and 5th grades, which are approved by the Estonian Ministry of Science and Education, were used as sources for analyzing the list of performed favorite songs[9].

Results

Component 5 had low success rates compared with most ATBSS components. Of 69 children, 54 (78%) could sing their favorite (or another) song. Most performances (52%, n=28) were incomplete. The children sang only one or two verses, only the chorus or in certain cases only fragments from the chorus. In 26 cases (48%), the song was performed completely or with only minor omissions. One 4-year-old girl sang two children´s songs. However, all of the other participants performed one song. Most of the songs were unique, that is, performed by only one participant. However, there were seven songs that were performed more than once (described later in the chapter).

Of the15 participants who refused to sing (6 girls; 9 boys; M_{age}=6.4 years; age range 4-10 years), most stated they do not have a favorite song or any other song they would be interested in singing. Three children mentioned that they have a favorite song but that the lyrics are in English and they would not be able to sing them. They also declined to sing any other favored song. Two other children also had a favorite song in English that they could not sing. However, they agreed to choose another song for the performance. For example, a 5-year old boy chose to sing an unrecognizable tune in a foreign language that mostly resembled French. Of the three Russian children in the sample, a 5-year old boy stated that his favorite song is in Russian but refused to perform it and instead sang another song in Estonian. An

[9] A songbook for kindergarten teachers (Peterson 2010) and songbooks for the 3rd (Anier and Muldma 2012) and 4th (Pullertis & Urbel 2010) grades were also analyzed. However, these songbooks did not include songs that children performed in this study.

eight-year-old Russian girl sang an Estonian song, and the other 5-year old Russian boy performed the world-famous *Happy birthday to you* both in Estonian and in Russian.

The list of all of the favorite songs collected in this study, including title, composer's name, year of release/publication, the number of participants who sang each song, whether the song is included in the music studies syllabus and whether the song has been performed at an SC is presented in Table 1. Of the 54 performances, 70% were original songs by Estonian composers, 13% were adaptions or translations into Estonian of songs that originated in other cultures/languages (French, German and English) and 11% were performed in other languages (English, Russian and French). For a total of 6% of the songs, the origin/language could not be identified, or the song was improvised during the testing session. Fifteen songs (28%) were included in the national syllabus for music, 9 songs in the syllabus for grade 1, four songs for grade 2 and two songs for grade 5.

--- insert Table 1 here

The list of performed songs was compared with the repertoire performed at the SCs. In the case of 11 songs (20% of the total list), the song had been performed at an SC, and four songs had been performed more than once.

The categorization of the performances is presented in Table 2, in which we can observe that most of the performances (40) were of children´s songs. There were 9 performances of adult songs, and the remaining five songs were "other" songs (i.e., two improvised songs, a hummed theme-song melody from a TV show (the only song presented without lyrics in the study) and *Happy birthday to you*). Children´s songs were chosen by younger participants (average age 6.9 years) and adult songs by older participants (average age 8.1 years). More girls chose adult songs than boys.

--- insert Table 2 here

The songs collected with this study are distributed over a wide time span according to their release date: from the 18th century to the 2010s (Figure 1). There were no songs from the 1940s and 1950s.

Songs with more than one performance

The most popular (i.e., 4 performances) was the song *Nõiamäng* (Witch´s game), whose notation is presented in Figure 1. This song was performed by three 6-year old girls and one 6-year-old boy, who were all from the same kindergarten and had recently learned this song.

----insert Figure 2 here

The second-most popular song was *Põdra maja* (The big old deer, Figure 2), an Estonian version (1960s) of the French nursery rhyme *Dans sa maison un grand cerf* (the English version *The big old deer* was also popular[10]), which was performed by three children: an 8-year-old girl, a 9-year-old boy and a 4-year-old boy.

---insert Figure 3 here

Five songs received two performances:

1) the popular children´s song *Hiir hüppas ja kass kargas* (The mouse jumped and the cat bounced) from the 1920s, which was performed by two 10-year old girls;
2) the popular children´s song *Rongisõit* (Train ride) (1962), which was performed by a 4-year-old girl and a 6-year-old boy;
3) the popular children´s song *Kiisu läks kõndima* (A cat went for a walk, 1960), which was performed by two 4-year old girls (one of them also sang *Rongisõit*);
4) the more recent children´s song *Pesapuu* (Nest tree, 2007), which was performed by two 8-year-old girls, who seemed to be good friends[11];
5) the popular Estonian hit *Rapunzel* (2010), which was performed by an 8-year-old and a 9-year-old girl.

Discussion

The task of singing one´s favorite song occurs in the middle of the ATBSS. Thus, the participants are already acquainted with the procedure and "warmed up". However, the nature of this task differs from the preceding ones, in which the participant is, for the most part, only

[10] The authors are aware that this song also has an Icelandic version.
[11] A researcher observed that one child was waiting for the other behind the testing-room door.

asked to repeat the phrases sung by the researcher. In Component 5, the child must make decisions on two levels: first, to determine whether he/she has a favorite song; second, to decide whether he/she can sing it. If there was no favorite song or if the participant was unable to sing it, the entire process had to be repeated with the goal of choosing another suitable song. If the child's character was inclined toward honesty, it would be difficult or impossible to choose a song that was not the favorite one. However, if the child was oriented toward performing well on the test, he/she could probably choose another song to fulfill the singing task. In this task, in which the participants were required to sing a song of one´s choice, the children had complete control of the situation. For example, they did not have to repeat musical phrases or learn or sing a certain song by taking clues from pictures. However, this type of "freedom" somehow resulted in a lower success rate for the task, and half of the presented songs were incomplete. Most of the children seemed to be more or less uncomfortable in this situation. However, compared with the children studied by Ilari and Habibi (2015), the Estonian children were considerably more willing to sing their favorite songs than their Brazilian and U.S. Latino peers. This result may be explained by the differences in the musical backgrounds of the samples. The children studied by Ilare and Habibi did not receive music lessons as part of their curriculum. However, the Estonian children received on average of two music lessons per week in kindergarten or school, and many also have participated in extracurricular musical activities.

Although the songs performed ranged from ever-popular nursery rhymes to recent radio hits, the repertoire learned in kindergartens and schools substantially influenced the children´s choice of favorite song. We (Raju & Ross, 2012) previously assumed that this tendency could be explained as the child choosing the easiest path to concluding this task successfully. However, because the meaning of the phrase "favorite song" was not discussed with children in detail, this conclusion may not be accurate in every case.

Four children from the same kindergarten chose the same song as their favorite (Figure 2). The song, which has fascinating lyrics concerning magical trees and poisons, had been recently learned by this kindergarten group. The song's melody is strongly reminiscent of the American jazz standard *Tea for two* (1924). Although we cannot rule out that these four children actually liked this song the most at the moment, it must be noted that although the children were individually tested, they may have had an opportunity to discuss the procedure and tasks and informed one another of which favorite song they sang when waiting for their turn. In the case of the popular song *Rapunzel*, which was performed by two girls, it was

obvious to the interviewer that the girls were friends and probably shared a favorite song for that reason.

In the song collection obtained in this study, it is notable that songs appear that seem not to recognize the borders between countries or languages, such as *Happy birthday to you*, *Hickory dickory dock* and *The big old deer*. *The big old deer* (*Põdra maja)* deserves an additional comment to pinpoint its importance in the Estonian collective repertoire. The song was adapted from French to Estonian in the 1960s and performed on the popular children´s TV show *Entel-tentel*[12] by a young boy named Jan Roosaar. The song is about an elk that has a house in the forest. In the Estonian version, the elk (not a deer because elk are more common in Estonia than deer) looks out its window and observes a rabbit running to escape a hunter and invites the rabbit in, and then, they shake hands. The song is accompanied by a set of movements that illustrate the lyrics. After the TV show, the song took on a life of its own. For example, when we examine the recordings of this song listed in the National Library database, we find that several versions of it have been included in children´s CDs, on albums that include popular Christmas carols (because the song is often performed to Santa Claus) and albums that include "beer songs". During the Soviet occupation, when recorded music and playback devices remained rare in Estonia, nearly every gathering of friends or family included joint singing. The elevated mood associated with alcohol consumption helped this type of simple song become widespread in Estonia. The song is also included in the national curriculum for music for first graders (Anier, 2009/2014). However, it is probably learned by children long before[13]. In 2007, *Põdra maja* was also included in the Youth SC repertoire in an instrumental arrangement and performed by brass bands. At the 2007 SC, the repertoire included the song *Pesapuu* (Nest tree), which was sung by two children as their favorite song in this study. The song concerns love, home and family and conveys the message that we all need our own home tree. The song represents a gentle means to instill positive feelings toward one´s homeland through the feelings that one has toward one´s family. Natural elements, such as trees (i.e., roots) seem to function better in Estonia than, for example, references to God. *Põdra maja* it was probably included in the SC program because it was already a popular

[12] A video recording from the 1960s in which Jan Roosaar sings the song and performs the accompanying movements is available on YouTube, http://www.youtube.com/watch?v=7I8eKdQSDtg, retrieved Nov 10th 2014.

[13] For example, *Põdra maja* was the first song learned by the daughter of this chapter´s first author. The girl first attempted to sing it when she was 20 months old. The song was sung to her by her parents but primarily by her grandfather, who cared for the girl on work days (see Raju and Ross, 2015).

song in Estonia. However, *Pesapuu´s* popularity derives directly from an SC: the song was the winner of the 2007 national children´s song contest and as the winning entry was included in the SC. The song became so popular that it was included in the repertoire of the next SC (2011). The popularity of the song *Rongisõit*, which has been in the SC repertoire four times, can primarily be associated with its gradual melody, which children can easily learn to play on the piano or xylophone.

The phenomenon of Estonia´s popular musical culture being largely performed in English is also reflected in the study results. This phenomenon is not limited to Estonia. Ilari and Habibi (2015) reported that Brazilian children also preferred English popular music to popular songs in Portuguese, which indicates that the spread of popular music in English is occurring worldwide. In our study, several children had favorite songs in English. However, because their English skills were insufficient, none of these children could sing the songs. Those participants who could sing in English were typically able to sing only fragments of the songs. Only one such song (*Don´t worry, be happy*) was performed in its entirety by a 12-year-old girl who probably had a basic knowledge of the English language. In other cases, when a song was performed in English, it was questionable whether the children knew the meaning of the lyrics or were only imitating the sound of the words. It is possible that for children who chose a song they could not understand, the essence of the song was expressed through the melody instead of the lyrics. Both Russian boys who participated in the study stated that their favorite song was in Russian but did not want to perform it although they were encouraged to do so by the interviewer. Finally, one boy agreed to sing some phrases of *Happy birthday to you* in Russian. However, his first choice was to sing the song in Estonian. The Russian girl immediately chose to sing in Estonian. All of the Russian children were receiving their education in Estonian and could participate and understand tasks in Estonian. Perhaps the reluctance to sing in Russian was related to the testing environment, in which Estonian was used. The Russian children might have felt that singing in Russian was somehow wrong. In the study by Ilari and Habibi (2015), the group of U.S. Latino children similarly tended to choose songs in English. Of 24 children, only one choose a song in Spanish.

When we examine the timeline of the song collection established in this study (Figure 1), we find an interesting reflection of Estonian history. There are some songs present from the pre World War II period that indicates the continuity of Estonian musical education. A gap in the timeline occurs during the 1940s and 1950s, that is, during World War II and the

beginning of the Soviet occupation. Perhaps as a result of the restrictions imposed on composers and their tacit resistance to socialist realism, the songs composed during this period have not remained in the collective memory of Estonians to be passed on to the children of today. Based on the results regarding the favorite songs of elderly individuals in which the mean age of exposure to the named favorite songs was 35 years (Cohen, Bailey and Nilsson, 2002), another hypothesis can be considered: the song preferences of the children may be strongly influenced by the favored repertoire of the parents and grandparents, which would explain why numerous songs from the 1960s popular TV chow were cited in the study.

Conclusions

In this chapter, we analyzed the favorite songs of Estonian children, which were collected using the ATBSS in the context of Estonian musical culture. Music and singing are defining aspects in Estonian national history, and the SC tradition has great importance for Estonians with respect to defining themselves and their country. The SC tradition is supported by high-quality music education in every level of the educational system, during which many Estonians form a habit of choral singing that continues throughout their lives. Although the SC tradition emphasizes Estonian music, popular music in Estonia is primarily produced and listened to in English.

The children´s favorite songs collected in this study were mostly sung in Estonian but also in English, French and Russian. The educational system and the SC tradition probably influenced the choice of favorite songs because many of favorite songs cited in this study are included in the national syllabus for music classes or have belonged to the SC repertoire. The timeline of the songs was lengthy, reaching from the 18th century to the preset, showing there are numerous beloved songs that have stood to the test of time and political regimes. The song preferences of the children may have been influenced by the favored repertoire of the parents and grandparents, which could explain why numerous songs from the 1960s popular TV show were cited in the study. Among the collected songs were also several songs that are known in many languages.

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Table 2. Categorization of performances (N = 54)

	Boys	Girls	Average age
Children´s song	16	24	6.9
Adult song	2	7	8.1
Other song*	3	2	4.8

*A theme song from a TV show, an improvised song (2), an unrecognizable tune "from the computer" (as the child stated), or Patty and Mildred Hill´s *Happy birthday to you*.

Table 1. List of children´s favorite songs collected in the study*

Authors Melody/lyrics	**Title and translation**	**Type****	**Year**	**In the repertoire of an SC or a Youth SC (year)**	**On the syllabus (grade)**	**No. of participants**
Gitte Gregersen/Hedi-Kai Sõstra	*Nõiamäng* The witch´s game	CS	2001		1	4
French tune/Neeme Laanepõld	*Põdra maja* The big old deer	CS	1960s	2007	1	3
Gustav Ernesaks/Ellen Niit	*Rongisõit* Train ride	CS	1962	1962 1967 1977 2007	2	2
Külli Murand/Külli Murand	*Pesapuu* Nest tree	CS	2007	2007 2011	1	2
Pilvi Üllaste/Pilvi Üllaste	*Kiisu läks kondima* A cat went for a walk	CS	1960	2014	1	2
Estonian tune/folklore	*Hiir hüppas ja kass kargas* The mouse jumped and the cat bounced	CS	1920s	1972		2
Lenna Kuurmaa/Vaiko Eplik	*Rapunzel*	AS	2010			2
Juhan Aavik/folklore and Karl Eduard Sööt	*Meie kiisul kriimud silmad* Our cat has stripy eyes	CS	1926	2014	1	1
August Kiiss/August Kiiss	*Mu koduke on tilluke* My home is small	CS	1930-s	1997	2	1

Rein Rannap/Ott Arder	*Maateadus* Geography	CS	1984	2011	5	1
Anzori Barkalaja/Anzori Barkalaja	*Kulla kutse* Tempted by gold	AS	2007	2007 2011		1
Toomas Voll/Ly Kuningas	*Kodu* Home	CS	1990s	1997 2014		1
Patty Hill/Mildred J. Hill	*Õnne soovime sul/Поздравляем тебя* Happy birthday to you	OS	1850		1	1
German tune/folklore	*Kes elab metsa sees* Who lives in the forest?	CS	1937		1	1
Riine Pajusaar/Sulev Oll	*Kodulaul* Home song	CS	2010s		2	1
Estonian tune/J. H. Hermann and P. Tekkel	*Juba linnukesed* Birds are singing	CS	1913		1	1
Maria Wunderlich/Maria Wunderlich	*Seeneralli* Mushroom race	CS	1984		1	1
German tune/Priit Aimla	*Hurraaderii* (untranslatable wordplay)	CS	1990s		5	1
Raivo Kõrgemägi/Ellen Niit	*Kuidas konnib päkapikk* How the elf walks	CS	2000s			1
Kaari Sillamaa/Kaari Sillamaa	*Röövlirock* Bandit´s rock	CS	1990			1
Tõnis Kõrvits/Tõnis Kõrvits	*Tammetõru laul* Song of an acorn	CS	1989			1

Jelena Tilitšejeva/A. Kuznetsova	*Ilus haljas kuuseke* Beautiful fir tree	CS	1982			1
Ave Kumpas/Ave Kumpas	*Päkapikk* An elf	CS	1990s			1
Riho Päts/E. Kuusik	*Oi-li i, oi -laa...* (untranslatable wordplay)	CS	1966			1
English nursery rhyme	*Hickory dickory dock*	CS	1744			1
Piret Rips/Leelo Tungal	*Päike vajub metsa taha* Sun is setting behind the forest	CS	2009			1
Anu Röömel/Anu Röömel	*Lõbusad noodid* Merry notes	CS	2010			1
Gustav Ernesaks (?)/ Ernst Enno NOTE: The song was first published in 1937 without a composer´s name. In 1971 the song was published with Gustav Ernesaks as the composer.	*Hiiretips läks putru keetma* Little mouse made porridge	AS	1937		2	1
Ago Teppand/Jaan Pehk	*NASA* NASA	AS	2012			1
Erki Pärnoja/Erki Pärnoja	*Good Man Down*	AS	2011			1
Sven Lõhmus/Sven Lõhmus	*Valged ööd* White nights	AS	2011			1
Raimond Valgre/Raimond Valgre	*Helmi* Helmi (Estonian woman´s name)	AS	1930s			1
From a kindergarten “musical”	*Rebase laul* Fox´s song	CS	2010s			1

Helve Mikussaar/Leelo Tungal	*Hiirehernesupp* Mice were cooking pea soup	CS	2003			1
Lehte Hainsalu/Reet Kõiv	*Kui ma ükskord natuke eksisin* Once when I was lost	CS	2007			1
Casimir Oberfeld, Léopold De Lima/Pierre Bay	*Oui, je suis de Paris* Yes, I am from Paris	AS	1936			1
Anu Röömel/Anu Röömel	*Lohede linn* City of dragons	CS	2006			1
Estonian tune/folklore	*Tombi-Toomas* Tombi-Toomas (man´s name in Estonia)	CS	1920s			1
Mari Poll/Kadri Hunt	*Kui vaatad pilvelaevu* When you´re watching clouds	CS	2008			1
Robert "Bobby" McFerrin/ Robert "Bobby" McFerrin	*Don´t worry, be happy*	AS	1988			1
Kaari Sillamaa/J. Sillamaa	*Punamütsikese laul* Song of the Red Riding Hood	CS	2008			1
Theme song from a TV show	*Lotokolmapäev* Lottery Wednesday	OS	2010-			1

*Two improvised songs and one unrecognizable tune are not listed here.

**CS: children´s song; AS: adult song; OS: other song.

Figure 1. Timeline for the songs collected in the study. Bars indicate the number of the songs from each decade; the line represents the number of performances.

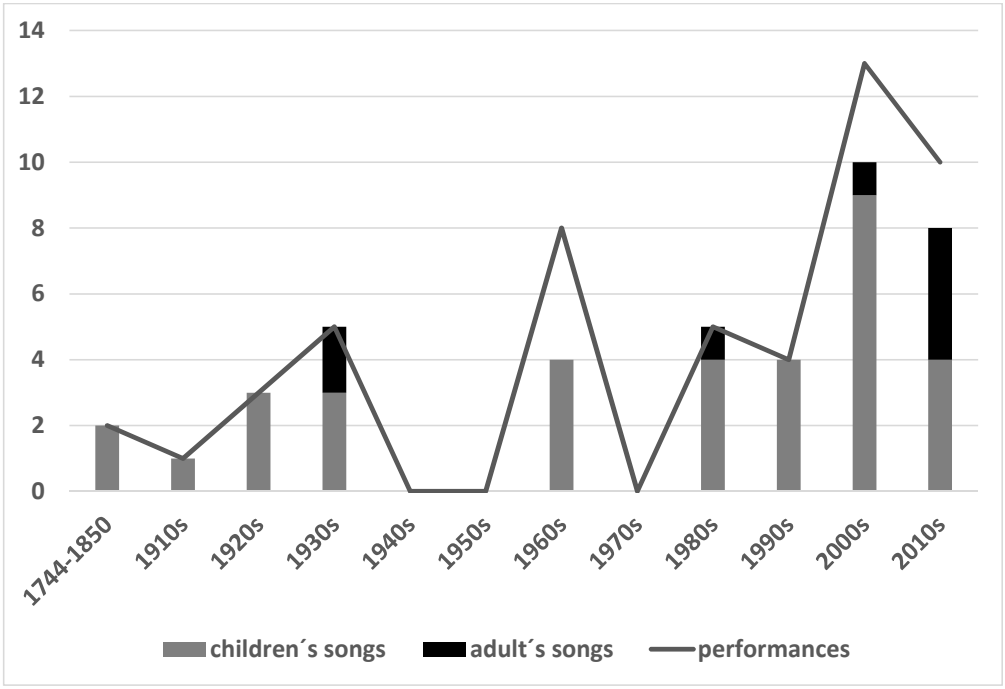
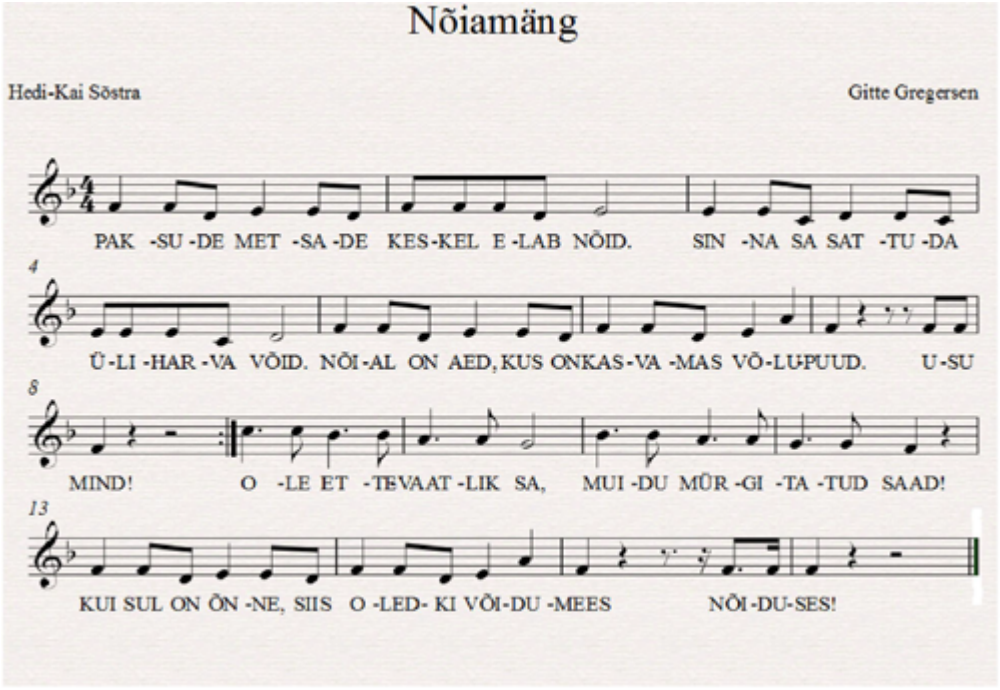


Figure 2. *Nõiamäng* (The witch´s game)



Translation:

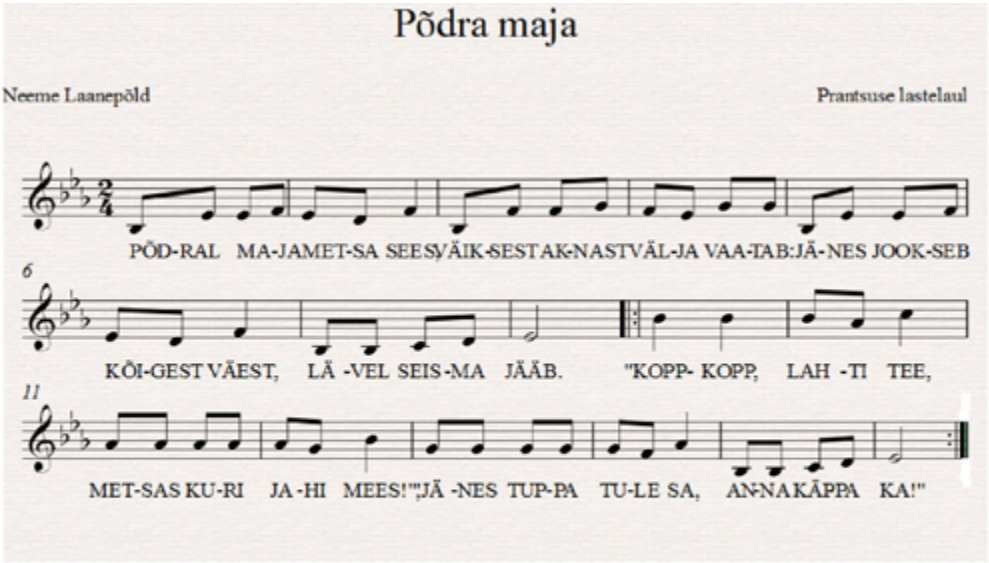
In the middle of the thick forest lives a witch
You can get there very rarely
The witch has a garden where the magic trees are growing
Believe me!

Chorus: Be careful or you will get poisoned!
With some luck, you are the winner in witchcraft

If you taste the fruits, you can get smart
If you taste the fruits, you can do witchcraft
However, some of the fruits are poisonous!
It is like that!

Be careful or you will get poisoned!
With some luck, you are the winner in witchcraft

Figure 3. *Põdra maja* (The big old deer)



Direct translation from Estonian:

Elk has a house in the forest
He´s looking out of a small window
Rabbit runs for its life, stops at the door

Chorus: “Knock-knock, open up!
There´s a hunter in the woods!”
“Rabbit, come on in,
Let´s shake hands!”

English lyrics

In the woods the big old deer
Looked outside and saw quite clear
Little rabbit came along and cried out this song:

Chorus: “Deer! Deer! Open up!
Evil hunter set a trap!”
“Rabbit, rabbit, stay with me
Good friends we shall be.”

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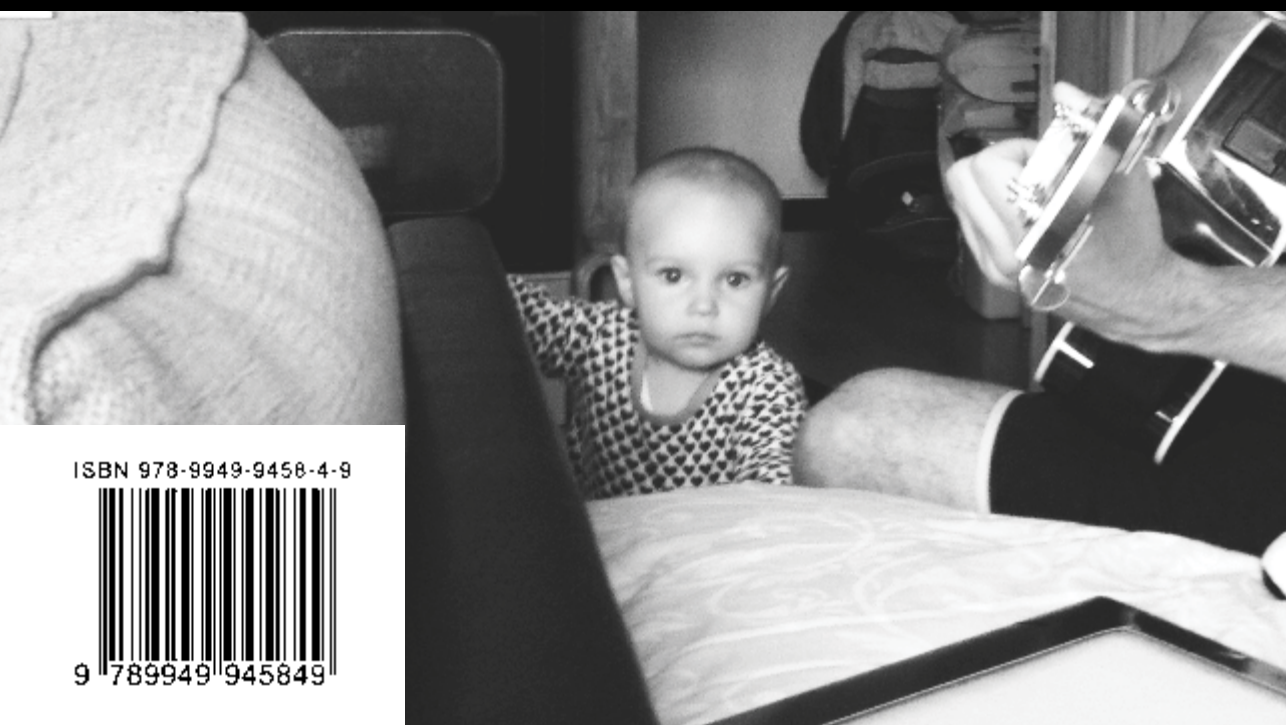

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