

# How listening develops and affects well-being throughout childhood

Marloes Vrolijk, Dominic Richardson and Sabbiana Cunsolo

Office of Research – Innocenti Working Paper  
WP 2021-15 | Dec 2021



## UNICEF OFFICE OF RESEARCH – INNOCENTI

The Office of Research – Innocenti is UNICEF’s dedicated research centre. It undertakes research on emerging or current issues in order to inform the strategic direction, policies and programmes of UNICEF and its partners, shape global debates on child rights and development, and inform the global research and policy agenda for all children, and particularly for the most vulnerable.

UNICEF Office of Research – Innocenti publications are contributions to a global debate on children and may not necessarily reflect UNICEF policies or approaches.

UNICEF Office of Research – Innocenti receives financial support from the Government of Italy, while funding for specific projects is also provided by other governments, international institutions and private sources, including UNICEF National Committees.

This project was co-funded by The Learning for Well-being Foundation and the Fetzer Institute.

## LEARNING FOR WELL-BEING FOUNDATION

The Learning for Well-being Foundation convenes catalysing partnerships aimed at bringing the voices and qualities of children more fully into creating well-being for themselves and their communities. Its activities cultivate the capacities of children, and the adults who interact with them, to transform each other and the world, while realising their unique potential throughout their lives. To know more visit [www.learningforwellbeing.org](http://www.learningforwellbeing.org).

## FETZER INSTITUTE

The Fetzer Institute is helping build the spiritual foundation for a loving world. Working with thought leaders, the Institute develops programmes, research projects, convenings and funding collaborations in the sectors of faith, spirituality, democracy, education and organizational culture. Learn more at [fetzer.org](http://fetzer.org).

The findings, interpretations and conclusions expressed in this paper are those of the authors and do not necessarily reflect the policies or views of UNICEF.

This paper has been reviewed by an internal UNICEF panel consisting of staff with subject matter or methodological expertise.

The text has not been edited to official publications standards and UNICEF accepts no responsibility for errors.

The designations employed in this publication and the presentation of the material do not imply on the part of UNICEF the expression of any opinion whatsoever concerning the legal status of any country or territory, or of its authorities or the delimitations of its frontiers.

Extracts from this publication may be freely reproduced with due acknowledgement. Requests to utilize larger portions or the full publication should be addressed to the Communications Unit at: [florence@unicef.org](mailto:florence@unicef.org).

For readers wishing to cite this document, we suggest the following form: Vrolijk, M., Richardson, D., Cunsolo, S. (2021). *How listening develops and affects well-being throughout childhood*, Innocenti Working Paper 2021-15, UNICEF Office of Research – Innocenti, Florence.

No conflicts of interest were reported by the authors.

Correspondence should be addressed to:

UNICEF Office of Research – Innocenti  
Via degli Alfani, 58  
50121 Florence, Italy  
Tel: (+39) 055 20 330  
Fax: (+39) 055 2033 220  
[florence@unicef.org](mailto:florence@unicef.org)  
[www.unicef-irc.org](http://www.unicef-irc.org)  
twitter: @UNICEFInnocenti  
[facebook.com/UnicefInnocenti](https://www.facebook.com/UnicefInnocenti)

© 2021 United Nations Children’s Fund (UNICEF)

Graphic design: Alessandro Mannocchi, Rome

Cover illustration: Sandbox Inc.

# How listening develops and affects well-being throughout childhood

Marloes Vrolijk<sup>i</sup>

Dominic Richardson<sup>ii</sup>

Sabbiana Cunsolo<sup>iii</sup>

<sup>i</sup> Research Consultant, UNICEF Office of Research – Innocenti

<sup>ii</sup> Chief, Social and Economic Policy Analysis, UNICEF Office of Research – Innocenti

<sup>iii</sup> Research Consultant, UNICEF Office of Research – Innocenti

## ABSTRACT

This review study was a first attempt to map the existing theoretical and empirical literature about a possible core capacity for well-being: listening. The main research question was: drawing from a multidisciplinary evidence base, what is the empirical and theoretical knowledge of children’s listening and how does it interact with overall well-being throughout childhood? Moreover, the review of the literature will contribute to the understanding of listening as a core capacity for well-being within the Learning for Well-Being framework. The review included systematic searches in four electronic databases and a selection of studies based on pre-set criteria. It focuses on the development of listening throughout childhood, listening in formal and informal learning, listening in family and community settings, and possible links between listening and well-being. Relevant empirical studies were identified that further explain the development of listening comprehension throughout childhood. Relevant streams of literature identified included listening to music and positive effects on child well-being, children’s extensive listening in schools, and the effects of undesirable listening environments. The Learning for Well-Being Foundation’s initial broad definition of listening was not replicated in the evidence base identified in this mapping paper. No studies were identified that considered listening and spirituality in a meaningful manner. Overall, in combination with the mapping papers on the eight other core capacities, this paper can contribute to the understanding of core capacities possibly benefiting child well-being.

## CONTENTS

<b>1. INTRODUCTION</b> .....	5
<b>2. CONCEPTUAL UNDERPINNINGS</b> .....	5
<b>3. METHOD</b> .....	6
3.1 Systematic search procedure .....	6
3.2 Inclusion and exclusion criteria .....	7
3.3 Listening from the perspective of spirituality .....	8
3.4 Applying the Matrix of Four Perspectives .....	8
<b>4. RESULTS</b> .....	9
4.1 Listening and development throughout childhood .....	9
4.2 Listening and classroom education .....	15
4.3 Listening and informal learning experiences .....	17
4.4 Listening, families and communities .....	19
4.5 Listening and well-being .....	20
4.6 Listening and its physical, emotional, mental and spiritual dimensions .....	21
4.7 Listening and other core capacities .....	22
<b>5. DISCUSSION</b> .....	23
<b>REFERENCES</b> .....	26
<b>APPENDIX A: LISTS OF KEY TERMS</b> .....	29
<b>APPENDIX B: QUALITY INCLUSION CRITERIA</b> .....	30

## 1. INTRODUCTION

The main research question of this mapping paper is: drawing from a multidisciplinary evidence base, what is the empirical and theoretical knowledge of children’s listening, and how does it interact with overall child well-being throughout childhood? This paper explores the evidence of listening as a core capacity for children. Studies are included on the development of listening, its role in education and home environments and its relationship with child well-being. The theoretical framework of the Learning for Well-Being Foundation (L4WB) is applied through the Matrix of Four Perspectives. According to the L4WB’s framework, children’s ‘core capacities’, such as listening, support a child’s well-being. The literature mapping will show to what extent evidence informs the hypothesis that listening can be understood as a core capacity for well-being.

This listening working paper is part of the Measuring What Matters (MWM) project. The MWM overarching background paper further explains the conceptual L4WB framework and its background. The project is a series of working papers that explore empirical and theoretical literature on nine core capacities for well-being: discerning patterns, enriching sensory awareness (embodying), empathizing, inquiring, listening, noticing (observing), reflecting, relaxing, and subtle sensing. Overall, this is a first attempt to map the existing theoretical and empirical literature about one of these core capacities: listening. This working paper can be read in combination with the other eight working papers on core capacities, the overarching MWM background paper, and the MWM synthesis report.

## 2. CONCEPTUAL UNDERPINNINGS

According to the Learning for Well-Being Foundations’ framework (Learning for Well-Being Foundation, 2019), listening is defined as follows:

Listening creates a space in which one hears more than the words spoken or the sounds present in the environment – one listens to the wisdom of one’s body, the integration of mind with emotions and body, one’s personal history, the change of seasons, to name only a few. Listening is always active, creating an interactive relationship in which one can hear oneself as well as other people, and the spaces between the words as well as the words themselves. ‘Listening’ is an act of expansion and connection. From different perspectives, the act of listening relates to *how* one listens and *to what* one listens. (p. 5)

L4WB also recognized the following short definition as synonymous with listening: “connecting to words, sounds, and spaces in oneself, others and the environment” (p. 5). From this definition, the concept of ‘active listening’ seems relevant to explore in this mapping paper.

According to the L4WB hypothesis, each core capacity can be experienced through each perspective (mental, emotional and physical) and should have a spiritual dimension. Based on the L4WB definitions for listening, the Matrix of Four Perspectives categorizes all studies identified in this working paper (see *Table 1*). Applying the matrix to the listening literature contributes to understanding how the literature allows for the theoretical classification of listening within L4WB’s four perspectives. The results section compares all studies placed in the matrix as an entire body of evidence. More background information on the development of the categorical matrix is available in the MWM overarching background paper.

**Table 1: Matrix of Four Perspectives on listening**

	<i>content</i> 'what'	<i>process</i> 'how'	SPIRITUAL (S)
			<i>intention</i> 'why'
MENTAL (M)	A <i>mental perspective</i> refers to “our cognitive and rational processes” and the functions of “envisioning, planning and valuing” (O’Toole, 2016, p. 17).	“A <i>mental</i> expression of listening is associated with listening for information, facts, and thoughts” (Learning for Well-Being, 2019, p. 5).	“At a <i>spiritual</i> level, listening is experienced as universal connection and flow” (Learning for Well-Being, 2019, p. 5).
EMOTIONAL (E)	An <i>emotional perspective</i> refers both to “our intrapersonal functions – our inner feelings, motivations and our interpersonal functioning – [and] our interactions with others” (O’Toole, 2016, p. 17).	“An <i>emotional</i> perspective on listening is associated with opening and connecting with emotional content, felt intention, the flow of communication” (Learning for Well-Being, 2019, p. 5).	
PHYSICAL (P)	A <i>physical perspective</i> refers to “the physical senses, to our bodies, and to the material and natural environments” (O’Toole, 2016, p. 17).	“A <i>physical</i> expression of listening is associated with sensing the context and environment. It is about listening for the action needed in this moment” (Learning for Well-Being, 2019, p. 5).	

### 3. METHOD

The purpose of this study is to map the empirical and theoretical evidence of inquiry as it relates to children and adults working with children. This working paper is a literature review that takes a systematic approach.

#### 3.1. Systematic search procedure

Systematic searches were conducted in the following electronic databases: PubMed, ERIC (Education Resources Information Centre), EBSCO and Google Scholar. A list of key search terms was used to search the proposed L4WB terminology and helped identify studies likely to meet the inclusion criteria. List 1 includes the key search term ‘listening’ based upon the conceptual framework; list 2 includes terms or phrases related to the population of interest, and list 3 includes terms related to the focus of the research question (Appendix A). Each search included terms from each list that were inserted as free text into the keyword fields. All possible combinations of terms across lists were searched separately. At all times, if the search with terms as free texts delivered too many results, the searches were limited by applying relevance sorting options and only considering the first 25 most relevant hits. In all databases, due to the substantial overlap while using children and adolescents, a combined search was used (e.g., ‘Listening AND (Children OR Adolescents) AND Development’). Each independent search was conducted for a 5-year period to find the most recent results (2015–2020) and a 20-year period

to find earlier relevant studies (2000–2020). All findings were limited to English, peer-reviewed studies by selecting the appropriate options in each database. For each combination of search terms, the literature was also scanned for existing literature reviews, systematic reviews or meta-analyses by selecting the databases' option to focus on reviews in the past 20 years. The flow diagram in Table 2 shows the number of studies included and excluded at the different search process stages.

**Table 2: Flow diagram for the listening review**

	Studies	Excluded studies
<b>IDENTIFICATION</b>	Studies identified through database searching ( $n = 960,505$ ). When within the first 25 most relevant results titles were read.	Studies excluded based on relevance hierarchy in databases ( $n = 959,599$ ).
	Study titles read through ( $n = 906$ ). When relevant abstracts were opened and read through fully.	Studies excluded based on title ( $n = 739$ ).
<b>SCREENING</b>	Study abstracts read through ( $n = 167$ ) and from additional search ( $n = 46$ ). When relevant the full papers were loaded.	Studies excluded from first round based on abstracts ( $n = 63$ ) non-availability ( $n = 6$ ). Studies excluded second round ( $n = 14$ ).
	Abstracts accepted and full papers loaded ( $n = 98$ ) and from second round ( $n = 32$ ). Total of papers after screening ( $n = 130$ ).	Studies excluded based on fuller reading ( $n = 38$ ), and deleting duplicates ( $n = 7$ ).
<b>ELIGIBILITY</b>	Papers read through more closely (introduction, methodology, conclusion) and sorted within relevant subtopics when still meeting the inclusion criteria ( $n = 85$ ).	Studies further excluded based on double checking inclusion criteria ( $n = 38$ ).
	Papers read more fully and inclusion criteria double-checked ( $n = 47$ ).	Studies excluded after final checks ( $n = 16$ ).
<b>INCLUDED STUDIES</b>	Full paper read and included in the results ( $n = 31$ ).	

### 3.2. Inclusion and exclusion criteria

In this review, a study had to meet various inclusion criteria at different levels of the review process. During screening and identification, a study had to include children or adults who have a direct and explicit link with children. Studies also had to include an explicit link to listening, its development or its connection to well-being. When studies met these principal inclusion criteria, they still needed to meet quality tests for eligibility on conceptual coherency, the use of appropriate methods and scientific validity (Appendix B). The ethical conduct of each study was reviewed but was not a requirement for inclusion. The included materials had to be in a standard format (such as papers, reports and policy briefs) and not duplicate a study already included. Studies that did not explicitly explore the development of listening were excluded, as were those that explored the development

of listening solely in adults without any links to children or adolescents. Finally, studies on children beyond typically developing children were excluded due to the vast amount of studies resulting from the initial searches.

All searches were recorded. The details of searches and numbers of included and excluded studies at different stages were documented. The detailed record of studies was archived and is available upon request. The flow diagram in Figure 2 includes an overview of how many studies were identified and retained based on the inclusion and exclusion criteria in each stage.

### **3.3. Listening from the perspective of spirituality**

An additional search round was conducted in order to incorporate possible evidence from the spiritual perspective on listening. The additional search round was in response to the identified gap in evidence of listening from the perspective of spirituality. In order to identify high-quality evidence relating to spirituality and listening, the input of various experts was considered, including the Learning for Well-Being Foundation, the Fetzer Institute and relevant individual spirituality researchers. Additional searches were conducted in order to find alternatives for suggested articles that were not available.

The inclusion and exclusion criteria were applied to the resulting list of spirituality articles. This time, the suggested articles and books were only included when the study was: explicitly focused on spirituality; of an empirical nature; on listening; focused on children or adults who have a direct and explicit link with children. Additionally, the general quality assurance inclusion criteria were applied (Appendix B). Finally, all material had to have a standard format and not duplicate a study already included. A detailed record of studies was archived and is available upon request.

Overall, a list of 160 studies was initially identified, of which 44 were entirely searched for the listening key term (search term 'listen'). Thirteen papers were read through more closely due to matches with the key term 'listening'. All 13 studies were excluded when applying the inclusion criteria: studies were rejected due to being theoretical (nine studies), only including adults (one study), and being irrelevant for the listening core capacity (three studies). Thus, none of the studies passed all criteria, and no further studies on spirituality were included in this paper.

### **3.4. Applying the Matrix of Four Perspectives**

Each study passing all the inclusion criteria is positioned within the Matrix of Four Perspectives in order to answer the question to what extent the Learning for Well-Being's hypothesis is supported with evidence. The matrix from Appendix A is applied to organize the articles in the various categories and levels (content, process or intention). Descriptions of possible studies for the various categories are shown in Table 3.



**Table 3: Types of studies for the Matrix of Four Perspectives**

			SPIRITUAL (S)
	<i>content</i> 'what'	<i>process</i> 'how'	<i>intention</i> 'why'
MENTAL (M)	Studies on the presence of the capacity in children.	Studies which explore how the capacity develops throughout childhood/ in response to specific individual interventions.	Studies which focus upon why children perform/show the capacity and studies which focus on spirituality explicitly.
EMOTIONAL (E)	Studies on the relationship between the capacity and feelings/interpersonal relationships.	Studies on how relationships and/or feelings influence the capacity.	
PHYSICAL (P)	Studies which focus upon the physical aspects of the capacity, or on doing the action.	Studies into how doing the action or the physical environment can affect the capacity.	

## 4. RESULTS

This mapping paper identified 31 empirical and conceptual papers as the evidence base for listening as a core capacity. In ERIC, EBSCO and PubMed, no extra meaningful findings were gained when adding 'active' to the search terms. After the searches were complete in the initial three databases, an additional short search was carried out with 'active listening' in Google Scholar to identify any other gaps. A second search round ensured that all relevant articles were included, including studies into adults listening to children. For the results on listening to children, various articles were identified that stressed the importance of listening to children in diverse contexts such as family justice, children's health and policy decision-making. However, most of these studies did not explore the listening capacity itself or how children can be listened to most effectively and were excluded.

Similarly, various studies came up that explored research methodologies and tools for listening to children. These were also rejected because there was no explicit focus on the listening capacity in children or adults. All studies included in this paper concentrated explicitly on the capacity of listening in children or adults working directly with children.

### 4.1. Listening and development throughout childhood

In this section on listening and development throughout childhood, 13 studies (1 conceptual and 12 empirical) were included. Many studies appearing from the searches focused on children's listening comprehension and how it develops throughout childhood and in school. As a result, nine studies examining the construct of 'listening comprehension' are discussed in this section, forming the majority of articles considered for this section. Overall, 'listening comprehension' seemed a helpful term for studying the core capacity of listening further. Many studies on reading comprehension

and listening comprehension use the concept of 'word reading'. The difference between 'reading' and 'word reading' is that word reading specifically explains the skill of reading words, and reading (comprehension) is a broader concept including constructs such as word reading but also linguistic concepts such as listening comprehension (Vaughn et al., 2020).

In an interdisciplinary review of literature, Jalongo (2010) examined various research strands related to listening during early childhood. 'Listening comprehension', was defined as "the young child's ability to understand what he or she hears" (p. 4). Young children (between the ages of birth to eight years old) are underrepresented in listening research, while aural messages are generally received from and before birth onwards and affect the young child's brain development. Considerable evidence from studies suggests that hearing acuity commences before birth and develops during fetal development (p. 3). The first three years of life are considered a critical period for developing auditory-neural connections in the brain. The listening trajectory for the newborn child consists of auditory awareness, auditory discrimination and auditory recognition. Early listening experiences are considered building blocks for literacy later in life, with children's receptive vocabulary existing at a very young age and being more extensive than their expressive vocabulary. Young children's listening styles and preferences are still developing, and a child's listening repertoires can be expanded by extending their listening experiences. In the review, the linkage between oracy and literacy with print was examined. Earlier studies suggested that listening comprehension is generally predictive of academic achievement. Moreover, listening and socio-emotional development are connected. Studies considered that listening plays a part in the earliest origin of empathy in which infants hear each other cry (p. 5). Moreover, listening to, telling, and retelling life stories supports constructing the child's autobiographical memory, linking with socio-emotional growth. Finally, listening was connected to self-regulation and provided evidence that children in preschool with behavioural problems often have poor receptive language skills (p. 6).

Lovett et al. (2012) studied the development of spatial listening skills in 56 normal-hearing children aged 1 to 8 years in England. Spatial listening skills include localizing sources of sound and perceiving speech in noise. The authors referred to studies from the 1990s with newborns and children aged 18 months that demonstrated that the ability to localize a sound source is present at birth for typically hearing children. Moreover, further studies showed that children aged 5 to 6 years demonstrated adult-like abilities on localization tests (locating a sound source). The study was partially dedicated to developing a test battery for children with a hearing impairment, which lies beyond the scope of this paper. In the rest of the paper, the researchers confirmed various relevant findings for understanding spatial listening skills development in children with normal hearing. Various tests assessed these skills: Left-Right Discrimination, Localization, Movement Tracking and Toy Discrimination tests. The results confirmed that performance improved with age in all tests except for the Movement Tracking Test. Performance was high for all ages in the Movement Tracking Test. The authors suggested that this developmental trend in spatial listening skills is related to changes in the auditory cortex, growth in head size and improvements in attention, memory and language skills, which are age-related. In different tests, young children demonstrated adult performance: for movement tracking at 1.5 years; left-right discrimination at 3 years; and localization and discerning speech in noise at 6 years.

Donnot et al. (2014) further examined auditory attention in 103 children aged 7 to 12 years. They demonstrated that children aged 7 to 8 years could shift their attention to identifying auditory emotional stimuli. Emotional stimuli in this study were five sentences made up of pseudowords read aloud in three emotional tones (angry, happy and neutral). The lateralized tone cue was a beep played to either the left or the right ear. The verbal cue was the word 'left' or 'right' presented to both ears

(binaurally). Compared to previous studies using other verbal stimuli, this study with emotional stimuli observed a younger age of success for the dichotic listening task (in which different sounds are played to the left and right ear). The authors suggested that the results were possibly influenced by using emotional stimuli (p. 542). In addition, the results showed that the children improved their performance in identifying an emotional tone when the left ear was cued compared to the right ear, which was previously found in studies on emotional auditory stimuli.

Vannest et al. (2009) examined the difference in activation of auditory and language-processing brain regions while children were passively and actively listening to a story. Their sample consisted of children aged 11 to 13 years in the USA. Data were gathered through functional MRI methods. Their results showed generally similar activation during the passive listening and active response tasks. However, the active tasks resulted in more activation in specific brain regions probably associated with memory and attention.

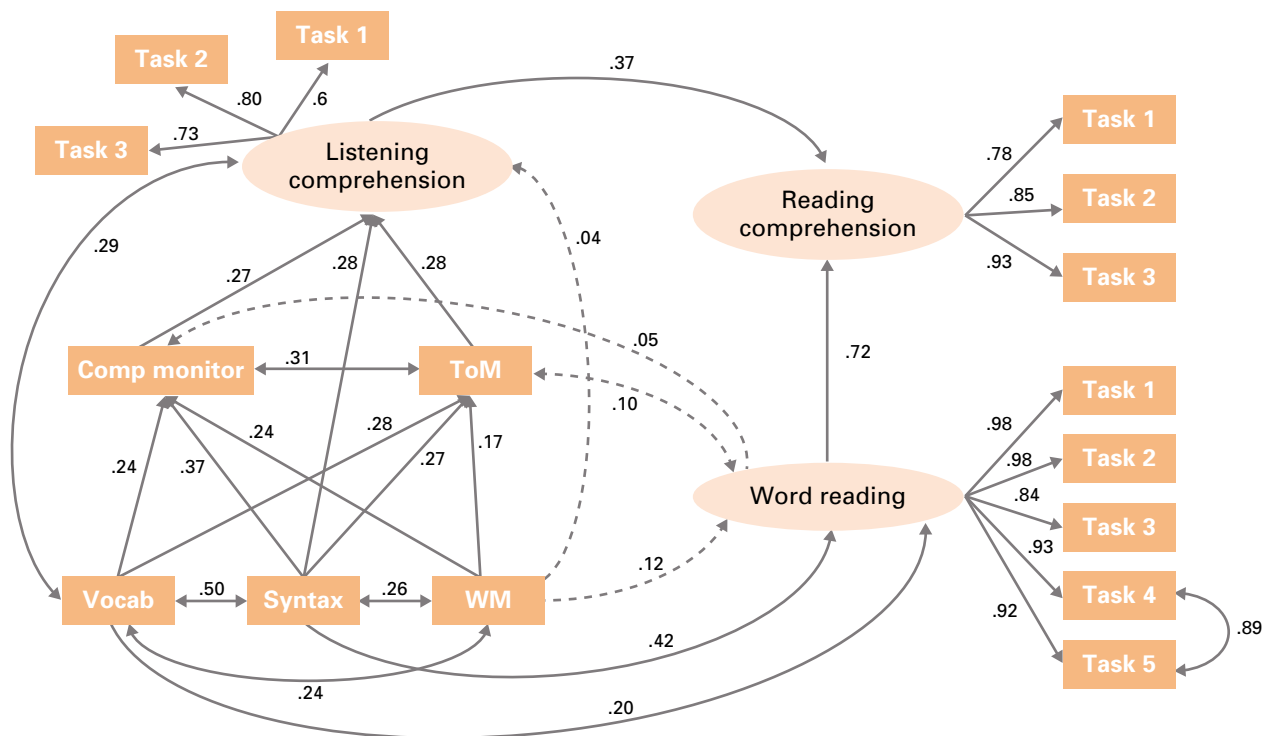
Alonzo et al. (2016) set out to find early predictors for 'listening comprehension' using data from a five-year longitudinal study in five United States university sites. They tested if various measures in pre-kindergarten predicted listening comprehension in second grade. They included 420 participants aged 4 to 5 years at the baseline of their study, but used data on 318 of the children. Listening comprehension was conceptualized as having both a language basis (vocabulary, inferencing and background knowledge) and a cognitive one (working memory and attention) (p. 313). The researchers referenced other studies to demonstrate the importance and influence of listening comprehension on children's reading comprehension. Still, educators generally focus mainly on precursors of word reading for testing and preventing reading disabilities. The researchers selected measures that best captured their constructs of interest: foundational language, higher-level language and working memory. A pre-kindergarten measure of listening comprehension, foundational language skills and working memory (ages 3 to 4 years) provided insight into listening comprehension in second-grade children (ages 7 to 8 years). However, the resulting statistical models were not strong enough to truly predict a child's future listening comprehension skills.

A study by Kim (2015) was based on the construction-integration model of text comprehension, according to which mental representation of text occurs at three levels: linguistic, text-based and situational (a mental model of the situation described in the text). The author considered that various language skills and cognitive processes are therefore likely to be needed for text comprehension. 'Listening comprehension' is a central skill that the author examined in this context. The author studied how low-order language and cognitive skills (such as vocabulary, syntactic knowledge and working memory) were related to high-order cognitive skills (such as comprehension monitoring and theory of mind). Additionally, the author considered whether all these skills (low-order language skills and low- and high-order cognitive skills) were related to listening comprehension. Finally, the author examined whether listening comprehension and word reading mediated the relationship between language and cognitive skills and reading comprehension.

Kim's (2015) study explained how low-order language and cognitive skills related to listening comprehension: by solely indirectly relating via high-order cognitive skills or directly relating to listening comprehension. Previous studies demonstrated that vocabulary, syntactic knowledge and working memory related to listening comprehension. However, these previous studies did not clarify whether this relationship was entirely mediated by high-order cognitive skills (e.g., comprehension monitoring or theory of mind). The study included 148 children aged 5 to 6 years in South Korea. Kim's results supported the hierarchical structure of language and cognitive processes. Low-order language

and cognitive skills (vocabulary, syntactic knowledge and working memory) predicted high-order cognitive skills (comprehension monitoring and theory of mind) that predicted listening comprehension (at a discourse level). Two low-order language and cognitive skills (vocabulary and syntactic knowledge) were also directly related to listening comprehension, while another low-order skill (working memory) was not. High-order cognitive skills (comprehension monitoring and theory of mind) completely mediated the relationship between working memory and listening comprehension. The study showed the relationship between these high-order cognitive skills and listening comprehension. Comprehension monitoring and theory of mind partially predicted listening comprehension, and the author suggested that further research is needed to study the relationship between inference-making skills, theory of mind and listening comprehension. Finally, listening comprehension and word reading explained 91 per cent variance in reading comprehension and completely mediated the relationship of the language and cognitive skills to reading comprehension. Figure 1 shows all results.

Figure 1: Results Kim (2015, p. 9)



In a longitudinal study covering preschool until early adolescence, Ebert (2020) examined the relation between theory of mind and language skills in a sample of 231 German children aged 3 to 14 years. Ebert did not define ‘theory of mind’. Kim (2015) defined it as: “the ability to make inferences about what others think and make predictions about their behaviors” (p. 139). Ebert (2020) demonstrated that changes in theory of mind from preschool until early adolescence can be predicted by language measures, such as receptive grammar and early sentence comprehension. Additionally, early theory of mind measures predicted changes in children’s receptive vocabulary. Early theory of mind did not affect listening comprehension or reading comprehension at a later stage. There was a small indirect effect of advanced theory of mind on reading comprehension through listening comprehension.

In another study on listening comprehension of narrative texts, Kim (2016) considered further direct and mediated effects of skills on listening comprehension. The study included a sample of 201 children aged 6 to 7 years in South Korea. Again, this study took the construction–integration model of text comprehension as the theoretical framework. This time, direct and mediated effects of the following skills on listening comprehension were studied: working memory and attention (as foundational cognitive skills); vocabulary and grammatical knowledge (as foundational language skills); and inference, theory of mind and comprehension (as higher-order cognitive skills). Kim (2016) theorized listening comprehension as a complex skill. Previous evidence demonstrated that beyond understanding vocabulary and combinations of words, listening comprehension requires higher-order cognitive skills (inference making, theory of mind and comprehension monitoring). ‘Inference’ was defined as: “children’s ability to integrate text information with background knowledge (i.e., elaborate inference, not referential) needed for the situation model” (p. 106). The theory of mind measure included first-order and second-order false belief scenario tasks. The results were that the language and cognitive skills included in the study explained 85 per cent of the variance in listening comprehension. Working memory, grammatical knowledge, inference and theory of mind directly predicted listening comprehension. Attention, vocabulary, and comprehension monitoring indirectly predicted listening comprehension. Working memory, grammatical knowledge and theory of mind contributed most to predicting listening comprehension. Vocabulary and inference contributed less. Comprehension monitoring and attention made the smallest contributions. In contrast with Kim’s study from 2015, this more recent study found a direct effect of working memory on listening comprehension, and the author concluded that working memory is critical for listening comprehension. The author further concluded that the results demonstrated the importance of foundational oral language skills (namely grammatical knowledge and vocabulary) for listening comprehension. Theory of mind had the largest effect on listening comprehension.

The Language and Reading Research Consortium (2017) studied whether oral language (vocabulary and grammar) and listening comprehension are separate constructs in children. Their study was based in the United States and included a large sample of 1,869 children aged 4 to 9 years. According to the researchers, there was no clear understanding of how listening comprehension relates to oral language. Moreover, there was no agreement about the basic constructs of listening comprehension. The content of measures of listening comprehension varies substantially across tests in different studies. Reading researchers have focused on listening comprehension due to its central role in reading comprehension. According to the Simple View of Reading, listening comprehension (also known as linguistic comprehension) is defined as “comprehension of written text read out loud” (Language and Reading Research Consortium, 2017, p. 1273). The researchers defined ‘listening comprehension’ in their study similarly as “the understanding of written discourse that has been read aloud” (p. 1279). They measured listening comprehension by assessing the answers to inferential and non-inferential questions based on spoken narrative and expository text to which the children listened. Additionally, the children completed another inference task in which they communicated their understanding of different sentences in a story and connected the story to general knowledge. Overall, the results of the study indicated that the measures of listening comprehension and oral language (vocabulary and grammar) assessed the same underlying construct throughout all years (4- to 9-year-olds) and therefore, according to the research consortium, oral language and listening comprehension were “best characterized as a single oral language construct” (p. 1273).

Further studies focused on the relationship between listening comprehension and various other constructs. In a longitudinal study from 2018, the Language and Reading Research Consortium and Chiu (2018) studied how word recognition and listening comprehension influenced reading

comprehension in 305 children aged 4 to 9 years from the United States. The findings were that more than 90 per cent of the variance in reading comprehension in Grade 3 (children aged 8 to 9 years) could be explained by listening comprehension and word recognition skills from pre-kindergarten (children aged 4 to 5 years). This result supported the Simple View of Reading framework. Lervåg et al. (2017) explored the relationship between oral language skills and reading comprehension further. Their longitudinal study included 198 children aged 7 to 13 years old. They stated that the Simple View of Reading is well established and supported by a large body of evidence. According to the Simple View of Reading, “understanding written text is the product of decoding and listening comprehension” (Lervåg et al., 2017, p. 1). Relevant findings for listening comprehension were that the language factor of vocabulary, grammar (syntax and morpheme generation), verbal working memory and inference skills explained 95 per cent of the variance in listening comprehension. Thus, the variations in listening comprehension were explained to a large extent by the language factor. Their findings contradict Kim’s studies (2015, 2016) that found unique contributions of inference skills and verbal working memory on listening comprehension. Another finding in line with Kim (2015) was the support found for the Simple View of Reading that listening comprehension fully mediated the influence of the language factors on reading comprehension. The authors recognized that constructs not included in their study could influence listening comprehension and reading comprehension, such as background knowledge or attention (included by Kim, 2016). Overall the authors concluded that “multiple language-related skills are involved in listening comprehension” (Lervåg et al., 2017, p. 15).

Tragant Mestres et al. (2018) studied possible positive effects of reading-while-listening compared to reading-only for 80 children aged 10 to 11 years. The authors suggested that multimodality may be beneficial for the young learners. Linguistic outcomes included that the reading-while-listening group had higher vocabulary gains but no enhanced reading or listening comprehension. Moreover, a non-linguistic outcome was that the children clearly preferred the reading-while-listening mode of input over reading-only.

Wolf et al. (2019) explored the relationship between reading and listening comprehension further in 85 children aged 7 to 9 years. They found that reading and listening comprehension both had general and modality-specific aspects. Comprehension types overlapped: listening comprehension explained 40 per cent of the variance for reading comprehension, and reading comprehension explained 34 per cent of the variance in listening comprehension. The researchers concluded that “part of the reading and listening comprehension process taps a general comprehension skill that operates regardless of modality” (p. 15). Moreover, vocabulary and word reading fluency contributed to both reading and listening comprehension, and the researchers suggested that vocabulary may play a role in the domain-general part of the general comprehension process. Still, reading comprehension and listening comprehension included modality-specific processes. The study could not clarify which processes these were exactly since no other cognitive skills measured contributed significantly to reading or listening comprehension.

## 4.2. Listening and classroom education

Overall, eight studies, six of them empirical, were included in this section on listening and formal education.

In an interdisciplinary literature review, Jalongo (2010) emphasized the importance of listening in classroom education. Previous observational studies demonstrated that students spent between 50 per cent and 75 per cent of their classroom time listening to their teachers, peers or audio media used in class. From other studies it emerged that listening skills are neglected in instructional materials with children, in teacher training and assessment: “[d]espite the fact that listening is the language skill that hearing children and adults use the most, it is the one that is taught the least” (p. 11). Additionally, many variables of classrooms as listening environments can negatively affect children’s listening comprehension. Such variables included: children’s less developed auditory processing mechanisms; health barriers to hearing, including allergies and ear infections; background noise; interruptions in the classroom, and language or dialect differences between the child and teacher or peers. In the review, Jalongo promoted a pedagogy of listening consisting of three components: interior listening, multiple listening and visible listening:

Contemporary early childhood classrooms need to demonstrate a “pedagogy of listening” that consists of attention to three components: (1) interior listening, in which children reflect on what it means to be in a particular environment; (2) multiple listening, in which children’s and adults’ voices are given equal time and respect; and (3) visible listening, that uses documentation of experiences (e.g., drawings, photographs, print, sculpture) as the basis for discussion and interpretation (Clark, 2007; Rinaldi, 2001). (pp. 11–12)

The author argued for fundamental changes in education in which teachers should become listeners more than talkers, whereas the reverse is often true:

Promoting effective listening would require a role reversal in which adults who work with young children would be superlative listeners as they strive to better understand children, families, and colleagues; interpret the rhythm and balance of learning experiences; hear the social, cultural, and community contexts of students’ lives; and attend to silence and acts of silence (Schultz, 2003). (p. 12)

This pedagogy of listening is addressed in existing educational approaches, such as Reggio Emilia schools of Italy (p. 5).

An empirical article examined 3,995 Greek elementary and secondary teachers’ active listening attitudes (Kourmoussi et al., 2017). The study used an online version of the Active Listening Attitude Scale (ALAS), a 31-item questionnaire divided into three factors: listening skill, listening attitude, and conversation opportunity. In this study, sex influenced the results, with females scoring higher on listening skill and conversation opportunity. Female teachers “appear[ed] to exhibit better listening attitudes and to be more eager to communicate” (p. 10). Neither age nor teaching experience influenced listening attitude, listening skill and conversation opportunity. Finally, principals and teachers who had received mental health promotion training scored higher on all ALAS subscales than the other educators included in the study.

In one study, 16 teachers of 207 young children (aged 2 to 5 years) received training to increase language and vocabulary development opportunities (Wasik et al., 2006). The study was conducted in American Head Start classrooms and centres that provide early childhood education for children living

in high poverty. The intervention consisted of book reading and oral language strategies. The oral language development training consisted of practising and promoting active listening, modelling rich language, and providing feedback. The teacher was trained to listen attentively, focus attention on the child and respond meaningfully. The teacher also taught the children to listen to others (being quiet while others are speaking, raising their hand when they want to speak, taking turns). After receiving the nine-month long intervention training, the teachers used strategies (such as providing feedback to language, asking descriptive questions and using active listening strategies) during book reading and other classroom activities. Initially, the teachers were reluctant to ask the children questions and allow them to talk due to concerns relating to keeping order.

Connolly et al. (2013) studied adolescents' perspectives of the quality of their school's acoustic environment. The study referenced previous research demonstrating that children, even as young as six years, are excellent judges of good and poor listening environments (p. 270). The online questionnaire was administered over a large sample (2,588 participants) of children 11 to 16 years old spread over six secondary schools in England. The children reflected on the full school acoustic environment (including individual classrooms and public places) and the sound sources impeding learning and listening. Four factors were identified from factor analysis (explaining 43% of the total variance in responses): ease of hearing in school spaces; sensitivity to noise; consequences of noise in the classroom; and annoyance at intermittent noise (p. 275). Noise from outside the classroom generally resulted in a higher annoyance level compared to noise from inside the classroom (p. 277). Outside noise resulted in higher annoyance regardless of occurring less frequently compared to noise from inside the classroom. Moreover, students with additional learning needs were more affected by noise and poor listening conditions and acoustics (p. 276). Older children were more sensitive to annoyance caused by noise (p. 277). Students were more negative about their listening environment when their school was exposed to external noise sources, such as main roads and railways, or when their school had increased internal noise sources, such as an open plan classroom design (p. 277).

Klatte et al. (2010) gave attention to acoustical conditions in classrooms and the relationship with students' performance and well-being at school. The authors focused on the reverberation time of various classrooms, which is: "the time in seconds required for sound pressure at a specific frequency to decay 60 dB after the sound source has stopped" (p. 660). Long reverberation time impedes speech signals reaching the listener due to the reduction in speech clarity and undesired sounds staying in the room longer and creating noise. The researchers measured the effects of acoustics in 21 classrooms from 8 schools by two experiments. For the first experiment into the effects of classroom reverberation time on cognitive performance, noise ratings and school attitudes, the classes of children taught in these classrooms participated in various tasks, including sound-categorization, written language acquisition, nonverbal intelligence, phonological processing and filling out a noise questionnaire, social and emotional school attitude questionnaire and a parental questionnaire. The first experiment included 398 children aged 7 to 9 years.

The result of this first experiment by Klatte et al. (2010) was that children from classrooms with a long reverberation time performed worse on a phonological processing task compared to children in classrooms with a short reverberation time. Moreover, the children from classrooms with a long reverberation time judged their relationships with their peers and teachers less positively and reported the noise in the classroom as a higher burden (p. 676). "These results confirm the view that reverberant classrooms provide an uncomfortable learning environment which, in the long-term, negatively affects social relationships between the pupils, and between the pupils and the teachers" (p. 676). In the second experiment, the researchers tested acute effects of classroom acoustics on speech perception



performance in a repeated-measurement design. The second experiment included 346 children aged 7 to 9 years. For this experiment, the children completed two tasks (identification of single words and sentence comprehension) in their own classroom and a control classroom with a favourable reverberation time. Classroom reverberation affected word identification significantly. No effect was found for sentence comprehension.

Through four experiments, Rudner et al. (2018) investigated how background noise, voice quality and visual cues influenced listening comprehension and effort in Swedish primary school classrooms. The researchers studied listening in 245 children aged 8 years. They simulated primary school classroom listening conditions by using a digitally animated voice and background babble noises. In the four experiments, the children completed listening exercises under varying conditions (e.g., with and without visual support and multi-talker babble noise). They found that the comprehension of a spoken passage was reduced and perceived difficulty increased when multi-talker babble noise was present. A dysphonic voice decreased perceived pleasantness but did not influence passage comprehension. In the simulated classroom, there was some association between good executive functioning and good auditory passage comprehension.

In the context of music education, Todd and Mishra (2013) reviewed the literature in order to understand effective listening instruction better. Meaningful listening instruction includes selection of pieces and also helping students to memorize and interpret the music heard. The researcher demonstrated that teachers should choose familiar music for upper elementary grades students (aged around 9 to 12 years), while students in the lower elementary grades (around 6 to 9 years) are generally most receptive to unfamiliar music and can be presented with unfamiliar pieces. Additionally, directed listening activities can be useful, such as multiple modalities of visual (listening maps) and kinaesthetic (movement activities) stimuli. Such active listening conditions heightened participation and attentiveness in different studies and samples.

### **4.3. Listening and informal learning experiences**

Many studies focused on arts engagement generally (one study) and listening to music specifically (five studies). One study on music listening in classroom education was covered in the previous section (Todd and Mishra, 2013). One study on music listening and well-being (Saarikallio et al., 2017) will be covered in section 4.5, Listening and well-being.

In a review of the empirical literature, Hallam (2010) examined the effects of active music engagement on children's intellectual, social and personal development. The researcher explored evidence of the impact of musical skills on perceptual and language skills, including listening. The study extended beyond listening skills, and the impact of musical skills on many other areas was examined, such as self-discipline, social work and relaxation. For listening skills, Hallam (2010) explained that music and speech have shared processing systems and through listening to music processing can be enhanced, which impacts perception of language and reading. The author concluded that music plays a key role in the development of perceptual processing systems facilitating encoding and identifying speech sounds. This conclusion was based on active music engagement generally, not solely on music listening.

In a large-scale empirical study in the United Kingdom, Mak and Fancourt (2019) provided evidence of an association between children's arts engagement, including listening to or playing music, and self-esteem. Their sample included 6,209 children aged 11 years. The researchers built their study on an established relationship between arts engagement and psychological well-being and mental health.

Arts engagement was measured through three possible activities: listening or playing music; drawing, painting or making things; and reading for enjoyment. For music activities the child's ability did not influence the positive effect on self-esteem: the child did not have to be good at art in order for art engagement to have a positive effect on the child's self-esteem. For music activities, the positive effect was strengthened when parents engaged in these activities with the children on a regular basis (once or twice a week).

In a Canadian context, Morinville et al. (2013) found that higher levels of self-determined music listening predicted higher subjective well-being in adolescents. The study included 238 participants aged 17 to 21 years. The authors specifically considered the effect of music listening on the adolescents' global happiness, defined as "people's personal, subjective and global evaluation of their cognitive and affective quality of life" (p. 384). Self-determined reasons to listen to music included inherent pleasure and personal meaning.

In a review of the literature on music and coping with stress in adolescence, Miranda (2019) found that studies generally focus on musical coping in the context of everyday-life self-initiated music listening. While sex and age differences are included in the literature, cultural differences are generally not studied. The author concluded that there is preliminary evidence that musical coping in adolescents can have both beneficial and detrimental outcomes. The author concluded that musical coping seems to exist during adolescence, especially in the form of listening to music, but further research needs to be done.

Porta (2018) examined ways children listen to film and television music in the child's home environment. The sample included 115 children aged 10 to 12 years. The researcher found that soundtracks create meaning to the narrative for children. The children keep interest even when the image was removed and only the music played. On the other hand, the story lost meaning once the music was removed. Overall, the study showed that music had meaning for children in various categories: space-temporal perception, definition of characters and story, emotions and musical recognition.

A survey study based on adolescents and young adults across Kenya, the Philippines, New Zealand and Germany explored music listening in families and in peer groups, and especially its relationship to family cohesion and emotional well-being (Boer and Abubakar, 2014). Their sample included 760 participants aged 13 to 29 years; this sample consisted of 436 adolescents and was therefore still included. Across all four cultures music listening contributed to family and peer cohesion. Music listening and rituals in families only affected youth well-being in the traditional and collectivistic cultures (Kenya and the Philippines) while for all cultural contexts there was a direct positive effect of music listening in peer groups on well-being. The study was based on well-supported research into the positive impact of music listening on emotions and well-being, with various studies focusing on adolescents.

#### 4.4. Listening, families and communities

In the previous section on informal learning, one study identified the positive effects of family music rituals on youth well-being in the Philippines and Kenya and the positive effects of peer music listening rituals on youth well-being in the Philippines, Kenya, New Zealand and Germany (Boer and Abubakar, 2014). The further four studies on listening and the child's social environment are of an empirical nature.

One study investigated how literacy activities at home influence school performance at a later stage. Silinskas et al. (2019) looked at home literacy activities and development of children's language and literacy skills including oral language skills consisting of vocabulary and listening comprehension. Their sample was large, with 1,880 children aged 5 to 8 years and their mothers. They found a relationship between shared reading predicting oral language skills of vocabulary and listening comprehension. They built on the home literacy model that explains how two types of literacy activities in a child's home environment (formal and informal ones) influence children's literacy and language skills in different ways. Formal literacy activities (such as teaching of reading) can improve children's decoding while informal literacy activities where print is present but not the focus (such as shared reading) can enhance language development such as vocabulary. In a Finnish context (a language with a highly transparent orthography), the authors examined how maternal teaching of reading and shared reading during preschool relates to the child's language and literacy skill development. Results relevant for listening comprehension included that shared reading positively predicted children's vocabulary and listening comprehension in school year 1 (children aged 7 to 8 years) and school year 2 (children aged 8 to 9 years) (p. 12). Following the Simple View of Reading, both vocabulary and listening comprehension influence reading comprehension (p. 15). Shared reading did not relate to a mother's beliefs and expectations about their child's performance in school, while teaching reading did. The authors concluded that these results indicate that traditionally parents read with their children in Finnish culture (informal activities within the home literacy model).

In a follow-up study, Hutton et al. (2017) focused on child engagement during a story listening task in a mainly qualitative study. While the previous study focused on how stimulating the home reading environment was around the child, this study focuses on intrinsic factors, such as child interest or engagement during reading. Twenty-two mother–daughter dyads were studied with daughters aged 4 years old and mothers mainly from a low socioeconomic status. Video observations of mother–child reading were gathered and scored by the researchers. The authors' hypothesis that children with higher engagement would show greater activation in brain areas supporting attention and narrative comprehension was not supported. Instead, children with higher engagement showed "increased activation in right-sided cerebellar association areas during the task, and greater functional connectivity between this activation cluster and language and executive function areas" (p. 2). The authors suggest that the children who are highly interested and engaged during shared reading show different neural processing than their less interested and engaged peers.

*Our findings suggest an intriguing, albeit tentative, mechanism by which these factors intrinsic to the child may enhance emergent literacy development via recruitment of cerebellar association areas – a cerebellar "boost" – during story sharing, and underscore the potential of interventions targeting parent-child engagement and interest in reading. (p. 14)*

The authors suggest that this cerebellar boost possibly makes the full reading experience for the child more pleasant, creating a further cycle of interest affecting both child and caregiver and leading to higher quantity and quality of shared reading experience and time.

In a similar study, Romeo et al. (2018) found that the more conversational turns children experience in a home environment, the greater their brain activation during a story listening task. The implications are that it is not only the amount of language addressed to children that is relevant, but also the extent to which parents have back-and-forth conversation with children. These results occurred independently of socioeconomic status, IQ and adult–child utterances. The study was conducted in an American context with children aged four to six. The data were gathered through home audio recordings and a functional MRI task during which children listened to short, simple stories. The researchers found that the conversational turns experienced influenced neural language processing more than the child's socioeconomic status.

Abrams et al. (2016) studied neural circuits underlying mother's voice perception based on the premise that early listeners are generally sensitive for the voices in their social environment. The researchers gathered fMRI data with children in the USA with a mean age of 10.2 years. When hearing their mother's voice, the children's brains were more active in various regions compared to hearing other female voices. Enhanced activity was found in auditory regions, affect processing regions, the reward circuit, the salience network and a region connected with face perception. "Surprisingly, brain signatures of mother's voice can be detected even ~10 y into childhood and provide a neural fingerprint of children's social communication abilities" (p. 4). The researchers indicated that children's social abilities are closely linked to the network activated when hearing their mothers' voices.

#### 4.5. Listening and well-being

One study explicitly considered how feeling listened to influences child well-being. Robson et al. (2017) focused on parent/carers and practitioners' perspectives on child well-being in England through an online questionnaire including Likert scales (numerical scoring) and free-text responses which were coded and analysed. The quantitative data included measurement of the parent/carers and practitioners' perspectives on the importance of 13 categories for child well-being, including *feeling listened to*. *Feeling listened to* was valued by both practitioners and parent/carers as one of the most important categories contributing to child well-being, ranked fifth by practitioners and fourth by parents/carers. More important categories were "good family relationships, experiencing fun and laughter and feeling good about themselves" (p. 7). "Time and space to play" was relatively considered slightly more important (by practitioners) or slightly less important (by parent/carer). The qualitative data included what children's well-being depended on. Practitioners especially emphasized the importance of children's feeling listened to, which was at times linked to children's agency (having a voice/ being involved in decision-making). The authors suggested that this emphasis may be related to national and international policy and practice levels that emphasize hearing children's voices (pp. 10–11). The authors recognized that in future studies the children's own perspectives should be taken into consideration.

Saarikallio et al. (2017) considered affective processing related to musical relaxation in a qualitative study with 55 children aged 15 years. They built on previous studies that proposed how music listening plays a major role for health and well-being in the daily lives of adolescents. Their study is linked to relaxation from the very start. The authors focused on affective states as an umbrella term including emotions, moods, arousal, energy levels and stress (p. 377), and especially on affective processing, including goals, outcome states, regulation strategies and induction mechanisms, and how these play a role in musical relaxation. In this qualitative study, the adolescents listened to their own relaxation music for 20 minutes and wrote a description about their experience which was analysed (summative and directed content analysis). The adolescents identified six affect-related goals: relax,

calm down/tranquillity, energize, improve mood, positive emotions, mixed (a combination of the other categories). The adolescents' reactions revealed three affect regulation strategies: processing (focusing and processing internal experiences), distraction (focusing on the music and not on the internal experiences), and induction (completely focusing on the music but no clear indication on focusing on or distracting from internal experiences). Additionally, the responses showed two mechanisms: musical (when the music itself created an emotional impact) and mental (when the music triggered something extra-musical, such as images or memories that created an emotional impact). Overall, the processing strategy was supported by both musical and mental mechanisms, while the strategies of distraction and induction were mainly supported by the musical mechanism (p. 385). The authors demonstrated that affect-related outcomes of musical relaxation in adolescence were supported with specific strategies and mechanisms. For instance, mood improvement was supported by the distraction strategy and the musical mechanism. Music listening can strengthen an existing neutral or positive mood serving as a "resource for positive emotionality" (p. 386).

Various studies had a different main focus but did mention well-being or included relevant constructs for well-being. For instance, a study concluded that self-determined music listening predicted higher subjective well-being (Morinville et al., 2013), while another study demonstrated that active music engagement, including music listening or making, positively affected self-esteem (Mak and Fancourt, 2019). A literature review showed that musical coping seemed to exist during adolescence, especially while listening to music, but it had both beneficial and detrimental effects, warranting further investigation (Miranda, 2019). An empirical study provided evidence from four contexts into how music listening and its rituals contributed to youth well-being in families in Kenya and the Philippines and in peer groups in Kenya, the Philippines, Germany and New Zealand (Boer and Abubakar, 2014). On the other hand, children from reverberating classrooms were less positive about their relationships with their peers and teachers and the children reported the noise in the classroom as a burden (Klatte et al., 2010). While the purpose of the study included measuring well-being, the findings were not clearly discussed in relation to the construct and conceptual understanding of well-being.

#### **4.6. Listening and its physical, emotional, mental and spiritual dimensions**

Studies included in this paper have been categorized by using the matrix of L4WB's four perspectives (Table 1), revealing those parts of the matrix most and least studied (*see Table 4*). Studies mainly fitted in the mental process category (16 studies), followed by the emotional process category (12 studies) and the physical process category (6 studies).

As in the other core capacity papers in this series, the mental process, emotional process and physical process are partially overrepresented. Following the L4WB framework, studies about the listening environment were grouped at the physical process level, and studies into the effect of relationships and interactions on listening were grouped at the emotional process level. If these studies were to be taken out of the matrix these categories would be less represented. Still, the mental process level remains by far the most studied level for the listening paper.

**Table 4: All studies in the Matrix of Four Perspectives**

			SPIRITUAL (S)
	<i>content</i> <i>'what'</i>	<i>process</i> <i>'how'</i>	<i>intention</i> <i>'why'</i>
MENTAL (M)	0 studies	16 studies <sup>1</sup>	0 studies
EMOTIONAL (E)	1 study <sup>2</sup>	11 studies <sup>3</sup>	
PHYSICAL (P)	0 studies	5 studies <sup>4</sup>	

*Note.* All listening studies were included in the matrix.

#### 4.7. Listening and other core capacities

In this mapping paper various overlaps were found with other core capacities, as follows:

*Inquiry:* Inquiry-based education and pedagogies of listening seem to go hand-in-hand. Listening should have a more central role in education for both adults and children according to the pedagogy of listening (Jalongo, 2010). In the inquiry core capacity mapping paper authors suggested that children should inquire more to take an active place in the classroom and their learning. One empirical study included in the listening paper showed that teacher training focused on asking questions can enhance teacher's asking open-ended questions and increase children's language and vocabulary development opportunities (Wasik et al., 2006).

*Relaxing:* Hallam's (2010) review of the effects of active music engagement for children's intellectual, social and personal development made some links to relaxation, including how active music engagement can provide relaxation (p. 279), and that singing benefits include relaxation (p. 281). Saarikallio et al.

<sup>1</sup> The 16 studies placed at the Mental (M) process level are: Alonzo et al., 2016; Donnot et al., 2014; Ebert, 2020; Hallam, 2010; Jalongo, 2010; Kim, 2015; Kim, 2016; Language and Reading Research Consortium, 2017; Language and Reading Research Consortium and Chiu, 2018; Lervåg et al., 2017; Lovett et al., 2012; Porta, 2018; Silinskas et al., 2015; Tragant Mestres et al., 2018; Vannest et al., 2009; Wolf et al., 2018.

<sup>2</sup> The one study placed at the Emotional (E) content level is: Kourmoussi et al., 2016.

<sup>3</sup> The 11 studies placed at the Emotional (E) process level are: Abrams et al., 2016; Boer and Abubakar, 2014; Hutton et al., 2017; Mak and Fancourt, 2019; Miranda, 2019; Morinville et al., 2013; Robson et al., 2017; Romeo et al., 2018; Saarikallio et al., 2017; Silinskas et al., 2015; Wasik et al., 2006.

<sup>4</sup> The five studies placed at the Physical (P) process level are: Connolly et al., 2013; Klatte et al., 2010; Rudner et al., 2018; Todd and Mishra, 2013; Tragant Mestres et al., 2018.

(2017) studied the affective processes of musical relaxation, including goals to relax, calm down/create a state of tranquillity, energize, improve mood, achieve positive emotions and mixed goals.

*Reflecting:* Kim (2016) understood the ability to think about somebody else's thinking as a metacognitive ability important in listening comprehension (in narrative texts). There is a clear link made here to the other core capacity of reflecting. Jalongo (2010) linked listening to self-regulation, which has some links with metacognition suggested in the reflecting paper (p. 6).

*Empathizing:* Links between listening and empathizing were suggested by a reference to nursery conditions in which one baby's crying triggers crying in other infants (Jalongo, 2010). Other studies linked theory of mind to listening comprehension (Kim, 2015; 2016), while another study did not find evidence of theory of mind and listening comprehension (Ebert, 2020).

*Noticing (observing):* None of the studies included in this paper explored noticing explicitly; however, it seems logical that there is an overlap between listening and noticing (observing). The mapping paper on noticing (observing) includes more explicit references to listening. For instance, in the results section it notes that "observation is defined as the act of careful watching and listening" (Cunsolo et al., 2021, p. 10) and noticing contained sensory characteristics including listening (p. 20).

*Enriching sensory awareness (embodying):* Hallam (2010) concluded that active music engagement plays a key role in developing perceptual processing systems. Moreover, the author explained how music and speech have shared processing systems and through listening to music processing can be enhanced, which impacts perception of language and reading. There seems to be an overlap with enriching sensory awareness ('embodying') that was studied through the key term 'enriching sensory processing'.

*Discerning patterns and subtle sensing:* There were no clear explicit links found in the studies included in this mapping paper between listening and discerning patterns, and listening and subtle sensing.

## 5. DISCUSSION

When comparing the initial L4WB definition with the resulting studies from the evidence base, several findings are evident. On the one hand, studies identified did examine how and to what children listen. On the other hand, no studies investigated listening following the broader L4WB interpretation of listening, which includes listening to one's own body and the environment. No empirical evidence was found to support this broad definition of listening. Searches for active listening did not provide many relevant findings. At the same time, some studies did include active listening with respect to teacher attitudes and teacher training (Wasik et al., 2006; Kourmoussi et al., 2017). Another review study included positive effects of active listening conditions (such as movement activities while listening to music) (Todd and Mishra, 2013). Studies included themes relevant for the L4WB framework, such as listening in families and the effects of music listening on well-being.

The studies on listening comprehension best explored the development of listening in childhood, although there is no consensus on this construct, which limited the comparison of results across studies. When further examining listening within the L4WB framework, 'listening comprehension' may be a useful key term to study, though the lack of consensus about this construct is a significant limitation. The results from the studies on the development of listening in children also demonstrate

that most studies consider listening comprehension to be closely related with other relevant constructs such as reading comprehension and oral language. Insights included that: oral language and listening comprehension measure an underlying construct for children aged 4 to 9 years (Language and Reading Research Consortium, 2017); various language-related skills were involved in listening comprehension (Wolf et al., 2019); and that listening and reading comprehension relied on a general comprehension skill (Wolf et al., 2019). These are important insights for the L4WB construct of listening as a core capacity. Core capacities should be innate and inherent constructs that other more complex capacities are built upon. With listening comprehension consisting of multiple constructs according to studies in the identified evidence base, listening may not meet all criteria for a core capacity.

Listening demonstrates various other characteristics of a core capacity, but the evidence does not necessarily show that listening is a core capacity following the L4WB conceptualization. Specific types of listening enhance well-being, but not all. The listening core capacity showed various overlaps with other core capacities, which can be explored further in the synthesis report. In combination with the mapping papers of the other eight core capacities, this mapping paper can provide further insights into the empirical evidence base for core capacities and well-being.

The nine core capacities from the L4WB framework may possibly contribute to child well-being. While well-being was often not extensively discussed in the evidence base for other core capacities, studies into listening mentioned it quite often. Related constructs, such as subjective and emotional well-being, health promotion, and positive emotions, were examined in various studies, especially on the relaxation and positive effects of music listening alone and in family and peer groups. Generally, these studies found positive effects of music listening in children's lives. One study examined how undesirable and noisy listening conditions negatively affected child learning and at times well-being.

The L4WB approach also focuses on how meaningful adults influence the core capacity of listening in children. From the evidence base, intervention studies in classroom education were successful at improving the listening skills of teachers. The children's perspectives were included in only a few studies but generally not clearly represented in the evidence base selected. For the understanding of listening as a core capacity, children's perspectives are largely missing. Gaining further insight from children's perspectives may be a relevant way forward for the MWM project.

Various age groups were studied in the evidence base in the samples. Overall, the 31 studies included 19 studies on children aged 6 to 10 years; 12 on children aged 11 years to adulthood; 10 on children aged 3 to 5 years; and 2 studies on children aged 12 to 35 months (some studies included children from more than one category). Some studies took a longitudinal approach, especially in the field of listening comprehension, for children aged 7 to 13 years (Lervåg et al., 2017); 3 to 8 years (Alonzo et al., 2016); 4 to 9 years (Language and Reading Research Consortium and Chiu, 2018); and 3 to 14 years (Ebert, 2020).

Most studies included sex-balanced samples but did not mention sex differences for the listening core capacity in their results. Only one study into active listening attitudes did, and it showed female child-educators scoring higher on listening skill and conversation opportunity (Kourmoussi et al., 2017). Overall, the studies considered predominantly the contexts of North America (17 studies) and Europe (15 studies). Two studies focused on a South Korean context and one study compared four countries (Kenya, the Philippines, New Zealand and Germany). In the comparative study, some effects of music listening applied to all cultures while others did not. Relevantly, youth well-being was only affected by music listening and rituals in families in traditional and collectivistic cultures (Boer and Abubakar,



2014). It will be interesting to see further insights on the influence of culture on listening and well-being across childhood.

A first limitation of this study is the selection of key terms, which has influenced the types of studies appearing. For instance, the key term 'listening' resulted in relevant findings while 'active listening' did not add many meaningful studies. The term 'listening comprehension' was only identified through the selection of relevant listening articles. This term was not systematically studied in the same way as the key term 'listening'. However, these additional terms are both component terms that have already been covered by the 'listening' searches. No relevant synonyms were identified in this study, while these were identified in the other mapping papers.

Another limitation was the focus on normally developing children. This is especially relevant since studies on diverse groups of children might shed more light on the role of listening for child well-being. The gap in very early child development may be particularly important in this paper because many papers were identified in the initial research phases that investigated listening (to music) in prematurely born babies. Those studies were not included.

Another limitation was the lack of global applicability of the selected studies. The language and database restrictions limit the representativeness of the studies, which are mainly based on data gathered in Europe and North America. Overall, increased diversity in many aspects (e.g., child population, context, sex diversity, ability) is desirable to explore listening throughout childhood more extensively.

## REFERENCES

- Abrams, D. A., T. Chen, P. Odriozola, K. M. Cheng, A. E. Baker, A. Padmanabhan, ... V. Menon, 'Neural circuits underlying mother's voice perception predict social communication abilities in children', *Proceedings of the National Academy of Sciences of the United States of America*, vol. 113, no. 22, 2016, pp. 6295–6300. <https://doi.org/10.1073/pnas.1602948113>
- Alonzo, C. N., G. Yeomans-Maldonado, K. A. Murphy, B. Bevens, and Language and Reading Research Consortium (LARRC), 'Predicting Second Grade Listening Comprehension Using Prekindergarten Measures', *Topics in Language Disorders*, vol. 36, no. 4, 2016, pp. 312–333. <https://doi.org/10.1097/TLD.000000000000102>
- Boer, D., and A. Abubakar, 'Music listening in families and peer groups: Benefits for young people's social cohesion and emotional well-being across four cultures', *Frontiers in Psychology*, vol. 5(May), 2014, pp. 1–16. <https://doi.org/10.3389/fpsyg.2014.00392>
- Connolly, D. M., J. E. Dockrell, B. M. Shield, R. Conetta, and T. J. Cox, 'Adolescents' perceptions of their school's acoustic environment: The development of an evidence based questionnaire', *Noise and Health*, vol. 15, no. 65, 2013, pp. 269–280. <https://doi.org/10.4103/1463-1741.113525>
- Cunsolo, S., D. Richardson, and M. Vrolijk, 'Noticing as a core capacity: a review of the literature on how noticing develops and affects well-being throughout childhood', UNICEF Office of Research – Innocenti, 2020.
- Donnot, J., M. Phelip, C. Blättler, and J. Vauclair, 'Children below 9 years use both verbal cues and lateralized cues to orient their attention in an emotional dichotic listening task', *Laterality*, vol. 19, no. 5, 2014, pp. 533–548. <https://doi.org/10.1080/1357650X.2013.868470>
- Ebert, S., 'Theory of mind, language, and reading: Developmental relations from early childhood to early adolescence', *Journal of Experimental Child Psychology*, vol. 191, 2020, 104739. <https://doi.org/10.1016/j.jecp.2019.104739>
- Hallam, S., 'The power of music: Its impact on the intellectual, social and personal development of children and young people', *International Journal of Music Education*, vol. 28, no. 3, 2010, pp. 269–289. <https://doi.org/10.1177/0255761410370658>
- Hutton, J. S., K. Phelan, T. Horowitz-Kraus, J. Dudley, M. Altaye, T. DeWitt, and S. K. Holland, 'Story time turbocharger? Child engagement during shared reading and cerebellar activation and connectivity in preschool-age children listening to stories', *PLoS ONE*, vol. 12, no. 5, 2017, pp. 1–19. <https://doi.org/10.1371/journal.pone.0177398>
- Jalongo, M. R., 'Listening in early childhood: An interdisciplinary review of the literature', *International Journal of Listening*, vol. 24, no. 1, 2010, pp. 1–18. <https://doi.org/10.1080/10904010903466279>
- Kim, Y. S., 'Language and Cognitive Predictors of Text Comprehension: Evidence From Multivariate Analysis', *Child Development*, vol. 86, no. 1, 2015, pp. 128–144. <https://doi.org/10.1111/cdev.12293>
- Kim, Y. S. G., 'Direct and mediated effects of language and cognitive skills on comprehension of oral narrative texts (listening comprehension) for children', *Journal of Experimental Child Psychology*, vol. 141, 2016, pp. 101–120. <https://doi.org/10.1016/j.jecp.2015.08.003>
- Klatte, M., J. Hellbrück, J. Seidel, and P. Leistner, 'Effects of Classroom Acoustics on Performance and Well-Being in Elementary School Children: A Field Study', *Environment and Behavior*, vol. 42, no. 5, 2010, pp. 659–692. <https://doi.org/10.1177/0013916509336813>
- Kourmoussi, N., E. Amanaki, C. Tzavara, and V. Koutras, 'Active Listening Attitude Scale (ALAS): Reliability and Validity in a Nationwide Sample of Greek Educators', *Social Sciences*, vol. 6, no. 28, 2017, pp. 1–14. <https://doi.org/10.3390/socsci6010028>

- Language and Reading Research Consortium, 'Oral Language and Listening Comprehension: Same or Different Constructs?', *Journal of Speech, Language, and Hearing Research*, vol. 60(May), 2017, pp. 1273–1284.
- Language and Reading Research Consortium, and Y. D. Chiu, 'The Simple View of Reading Across Development: Prediction of Grade 3 Reading Comprehension From Prekindergarten Skills', *Remedial and Special Education*, 39, no. 5, 2018, pp. 289–303.
- Learning for Well-Being Foundation. *Brief Statements on Core Capacities*, 2019, pp. 1–7.
- Lervåg, A., C. Hulme, and M. Melby-Lervåg, 'Unpicking the Developmental Relationship Between Oral Language Skills and Reading Comprehension: It's Simple, But Complex', *Child Development*, vol. 89, no. 5, 2018, pp. 1821–1838. <https://doi.org/10.1111/cdev.12861>
- Lovett, R. E. S., P. T. Kitterick, S. Huang, and A. O. Summerfield, 'The developmental trajectory of spatial listening skills in normal-hearing children', *Journal of Speech, Language, and Hearing Research*, vol. 55, no. 3, 2012, pp. 865–878. [https://doi.org/10.1044/1092-4388\(2011/11-0096\)](https://doi.org/10.1044/1092-4388(2011/11-0096))
- Mak, H. W., and D. Fancourt, 'Arts engagement and self-esteem in children: results from a propensity score matching analysis', *Annals of the New York Academy of Sciences*, August 2019.
- Miranda, D., 'A review of research on music and coping in adolescence', *Psychomusicology: Music, Mind, and Brain*, vol. 29, no. 1, 2019, pp. 1–9. <https://doi.org/10.1037/pmu0000229>
- Morinville, A., D. Miranda, and P. Gaudreau, 'Music listening motivation is associated with global happiness in Canadian late adolescents', *Psychology of Aesthetics, Creativity, and the Arts*, vol. 7, no. 4, 2013, pp. 384–390. <https://doi.org/10.1037/a0034495>
- O'Toole, L., 'Cultivating Capacities: a Description of the Learning for Well-Being Approach To Core Practices', in M. Matthes, L. Pulkkinen, B. Heys, C. Clouder, and L. M. Pinto (Eds.), *Improving the Quality of Childhood in Europe, Volume 6*, 2016, pp. 14–29.
- Porta, A., 'The music that children listen to in movies, series and TV documentaries. An empirical study on its meaning', *International Review of the Aesthetics and Sociology of Music*, vol. 49, no. 2, 2018, pp. 311–332.
- Robson, S., S. Brogaard-Clausen, and D. Hargreaves, 'Loved or listened to? Parent and practitioner perspectives on young children's well-being', *Early Child Development and Care*, 2017. <https://doi.org/10.1080/03004430.2017.1369976>
- Romeo, R. R., J. A. Leonard, S. T. Robinson, M. R. West, A. P. Mackey, M. L. Rowe, and J. D. E. Gabrieli, 'Beyond the 30-Million-Word Gap: Children's Conversational Exposure Is Associated With Language-Related Brain Function', *Psychological Science*, vol. 29, no. 5, 2018, pp. 1–11. <https://doi.org/https://doi.org/10.1177/095679761774272>
- Rudner, M., V. Lyberg-Åhlander, J. Brännström, J. Nirme, M. K. Pichora-Fuller, and B. Sahlén, 'Listening comprehension and listening effort in the primary school classroom', *Frontiers in Psychology*, vol. 9(Jun), 2018, pp. 1–7. <https://doi.org/10.3389/fpsyg.2018.01193>
- Saarikallio, S., M. Baltazar, and D. Västfjäll, 'Adolescents' musical relaxation: understanding related affective processing', *Nordic Journal of Music Therapy*, vol. 26, no. 4, 2017, pp. 376–389. <https://doi.org/10.1080/08098131.2016.1276097>
- Silinskas, G., M. Torppa, M. K. Lerkkanen, and J. E. Nurmi, 'The home literacy model in a highly transparent orthography', *School Effectiveness and School Improvement*, vol. 31, no. 1, 2019, pp. 1–22. <https://doi.org/10.1080/09243453.2019.1642213>
- Todd, J. R., and J. Mishra, 'Making Listening Instruction Meaningful', *Update: Applications of Research in Music Education*, vol. 31, no. 2, 2013, pp. 4–10. <https://doi.org/10.1177/8755123312473609>

- Tragant Mestres, E., À. Llanes Baró, and À. Pinyana Garriga, 'Linguistic and non-linguistic outcomes of a reading-while-listening program for young learners of English', *Reading and Writing*, vol. 32, no. 3, 2019, pp. 819–838. <https://doi.org/10.1007/s11145-018-9886-x>
- Vannest, J. J., P. R. Karunanayaka, M. Altaye, V. J. Schmithorst, E. M. Plante, K. Eaton, J., ... S. K. Holland, 'Comparison of fMRI data from passive listening and active-response story processing tasks in children', *Journal of Magnetic Resonance Imaging*, vol. 29, no. 4, 2009, pp. 971–976. <https://doi.org/10.1002/jmri.21694>
- Vaughn, S., P. Capin, N. Scammacca, G. Roberts, P. Cirino, and J. M. Fletcher, 'The critical role of word reading as a predictor of response to intervention', *Journal of Learning Disabilities*, vol. 53, no. 6, 2020, pp. 415–427. <https://doi.org/10.1177/0022219419891412>
- Wasik, B. A., M. A. Bond, and A. Hindman, 'The effects of a language and literacy intervention on head start children and teachers' *Journal of Educational Psychology*, vol. 98, no. 1, 2006, pp. 63–74. <https://doi.org/10.1037/0022-0663.98.1.63>
- Wolf, M. C., M. M. L. Muijselaar, A. M. Boonstra, and E. H. de Bree, 'The relationship between reading and listening comprehension: shared and modality-specific components', *Reading and Writing*, vol. 32, no. 7, 2019, pp. 1747–1767. <https://doi.org/10.1007/s11145-018-9924-8>

## **APPENDIX A: LISTS OF KEY TERMS**

### **List 1: term related to core capacity**

Listening

### **List 2: terms related to population**

Children

Adolescents

### **List 3: terms related to research focus (OPTIONAL)**

BLANK

Development

Well-Being

Life skill

## APPENDIX B: QUALITY INCLUSION CRITERIA

	Criteria	Sub-categories	Description
1	What does it mean for a study to be <b>Conceptually Coherent</b> ?	Introduction	Topic, purpose, and study rationale are clearly stated.
		Literature Review	The relevant conceptual underpinnings of the issue are fully explained.
		Research questions	Research questions and/or hypotheses are well defined and drawn from sound evidence-based theoretical or conceptual framework.
2	What does it mean for a study to use <b>Appropriate Methods</b> ?	Methods	The research design and sampling are appropriate for the study. The study includes a well-articulated rationale.
		Theory (especially for studies with a primary theoretical framework)	A sound and established theoretical line is present.
		Data	Relevant data have been employed. Where survey data are used, the sample is well described and clearly appropriate for the task at hand.
		Analyses	The procedures and measures have been selected correctly and applied correctly.
3	What does it mean for a study to be <b>Scientifically Valid</b> ?	Results	The results of the statistical/empirical tests are fully and correctly interpreted. Basic statistical information, such as probability stats, sample sizes, etc., and coherent explanation of findings are included – avoids overstating the study's importance and generalizability.
4	<b>Ethics (important but not a requirement to be accepted)</b>	Ethical review	If the research involves primary data collection and/or the use of sensitive secondary data, ethical considerations are described in the study. For example, the article might include details of the procedures followed to ensure the ethical review of data, an indication that the study received the proper oversight from review board or any mitigation strategies.

for every child, answers

UNICEF Office of Research – Innocenti  
Via degli Alfani, 58  
50121 Florence  
ITALY

Tel: (+39) 055 20330  
Fax: (+39) 055 2033220  
[florence@unicef.org](mailto:florence@unicef.org)  
[www.unicef-irc.org](http://www.unicef-irc.org)  
twitter: @UNICEFIInnocenti  
[facebook.com/UnicefInnocenti](https://facebook.com/UnicefInnocenti)

© 2021 United Nations Children’s Fund (UNICEF)

**unicef**   
Office of Research – Innocenti