

The development of children's musical perception and preferences

AN OVERVIEW OF SELECTED RESEARCH FINDINGS

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On the basis of selected studies, this overview summarises how children's musical perception and preferences develop and how these preferences change with age.

Musical preferences, prejudices and aversions are characteristic aspects of a person's musical personality and influence our approach to all kinds of music. Music accompanies us throughout our lives and it is even assumed that human speech developed from onomatopoeia for communicative purposes, i.e. our ancestors communicated via linguistic-musical sounds (Hellbrück, 2008, p. 20). The following provides an overview how children perceive and experience music and what preferences they develop.

Hellbrück, Jürgen (2008). *Das Hören in der Umwelt des Menschen*. In Herbert Bruhn et al. (Eds), *Musikpsychologie*. Das neue Handbuch (pp. 17-36). Reinbek: Rowohlt.

THE DEVELOPMENT OF MUSICAL PERCEPTION AND ABILITIES

Children's perception of music

Human perception of music begins before birth. The ability of a **foetus** to hear is so advanced that from the fifth month of pregnancy onwards it can process acoustic stimuli. Hence music and language are already perceptible to unborn children, albeit only muted and with few overtones (Sallat, 2018, p. 122). Unborn children react to acoustic stimuli with movements

or changes in heart rate while still in the womb and can even distinguish between different pitches or tempi (Bullerjahn, 2010, p. 58). A foetus recognises pieces of music the mother has heard, sung or played herself during pregnancy, and prefers them after birth. One study demonstrated that one-year-olds can remember pieces of music they heard in the womb up to 3 months before birth and not thereafter (Levitin, 2006, p. 223). This was shown by an early study of prenatal reception of the theme tune to the television series *Neighbours*, although in this investigation infants' postnatal memory was not very sustained (Hepper, 1991).

The mother's voice has a special role as the foetus can perceive it particularly well via the pelvic bones, with very little dampening. **Infants** prefer this voice to others (including that of the father), and also prefer their mother tongue (environmental language) to a foreign language (Sallat, 2018, p. 122). Cross-culturally, communication with newborns is specific with the so-called "baby talk" being characterised by its particularly musical form of address. Adults unconsciously use baby talk when speaking to babies, raising their basic pitch and slowing their tempo. Utterances are often repeated ("da, da, da"), given exaggerated emphasis and sometimes stretched melodically.

So **toddlers** are confronted with musical elements in dialogue with attachment figures at a very early stage and very frequently. Intercultural comparisons confirm that children particularly enjoy

this form of address and prefer this kind of melodic vocalisation to monotone speech. For instance, ascending melodies alert children's attention. Lullabies and action songs for infants display elements of baby talk; they often repeat short sections, have a simple musical structure, and are sung at a higher pitch and with exaggerated differences in pitch (Hannon & Schellenberg, 2008, p. 133 ff.). This is in keeping with the findings of neuroscientific research that during this early stage of development, the brain perceives language as a kind of music. Music and language are processed in the same regions of the brain, and not as different phenomena (Koelsch & Schröger, 2018, pp. 477 ff.; Bower et al., 2021, p. 14).

Infants can recognise sounds, understand them and can remember them. But the way they perceive music is nevertheless entirely different to the way adults do: the younger the children, the more their perception involved the whole body and the less it is separated into cognitive, motor or emotional spheres (Gruhn, 2018, p. 2). For instance, music provokes much stronger motor reactions in children than language (Zentner & Eerola, 2010, p. 5768). One study has demonstrated how closely preschool children's ability to listen to music is correlated with the development of motor control (Gruhn et al., 2012).

Up to the age of 5, children find it hard to tell melody, text and rhythm apart, since they perceive music as a complex unit: they experience "music as a flow of tones" with different em-

phasis (Gruhn, 2018, p. 3). Nevertheless, just like adults, infants also recognise a melody if it is played at different pitches (Trehub, 2005, p. 43). Well into primary school age, German children describe differences in pitch as “light” and “dark”; the spatial terms “high” and “low” do not yet mean much to them (Gruhn, 2003, p. 62).

During **early and mid childhood**, children acquire unconscious knowledge of the rules of music in their cultural sphere, which enables them to recognise “wrong” tones in a familiar song or a musical scale without music lessons. They are not able to do this however with music from a foreign cultural sphere, something that 8-month-old babies can still manage with ease. Later, they lose this knowledge (Hannon & Schellenberg, 2008, pp. 140 ff.). **Five-year-olds** already have knowledge of the structure of the musical scale, but not about the implicit harmony. Hence researchers assume that their tonal perception is not fully developed until between the ages of **6 and 12** (ibid.). All culture-relevant acoustic abilities in musical perception are developed during this phase (Bullerjahn, 2010, p. 57).

Sallat, Stephan (2018). *Frühe musikalische Entwicklung: Pränatal bis Kindergarten*. In Andreas Lehmann & Reinhard Kopiez (Eds), *Handbuch Musikpsychologie* (pp. 121-150). Göttingen: Hogrefe.

Bullerjahn, Claudia (2010). *Musikbezogenes Lernen und Bedeutung von Musik in der Kindheit*. In Ludwig Duncker et al. (Eds), *Bildung in der Kindheit* (pp. 57-66). Seelze: Klett und Kallmeyer.

Levitin, Daniel (2006). *This is your brain on music: Understanding a human obsession*. Boston: Dutton.

Hepper, Peter (1991). *An examination of fetal learning before and after birth*. *Irish Journal of Psychology*, 12(2), 95-107.

Hannon, Erin & Schellenberg, Glenn (2008). *Frühe Entwicklung von Musik und Sprache*. In Herbert Bruhn et al. (Eds), *Musikpsychologie*. Das neue Handbuch (pp. 131-143). Reinbek: Rowohlt.

Koelsch, Stefan & Schröger, Erich (2018). *Neurowissenschaftliche Grundlagen der Musikverarbeitung*. In Andreas Lehmann & Reinhard Kopiez (Eds), *Handbuch Musikpsychologie* (pp. 461-481). Göttingen: Hogrefe.

Bower, Janeen et al. (2021). *The neurophysiological processing of music in children*. *Frontiers in Psychology*, 12. Available at: <https://doi.org/10.3389/fpsyg.2021.615209>

Gruhn, Wilfried (2018). *Wie Kinder Musik wahrnehmen und erleben*. *Zeitschrift ästhetische Bildung*, 10(1), 1-11.

Zentner, Marcel & Eerola, Tuomas (2010). *Rhythmic engagement with music infancy*. *Proceedings of the*

National Academy of Sciences in the USA, 107(13), 5768-5773.

Gruhn, Wilfried et al. (2012). *The development of motor coordination and musical abilities in pre-school children*. *Arts BioMechanics*, 1(2), 89-103.

Trehub, Sandra (2005). *Musik in der frühen Kindheit*. In Rolf Oerter & Thomas Stoffer (Eds), *Spezielle Musikpsychologie*. Enzyklopädie der Psychologie. Serie VII Musikpsychologie (vol. 2) (pp. 33-56). Göttingen: Hogrefe.

Gruhn, Wilfried (2003). *Kinder brauchen Musik: Musikalität bei kleinen Kindern entfalten und fördern*. Weinheim: Beltz.

The development of musical abilities

Children’s development of their own musical skills depends heavily on their development in the spheres of language, motor skills, perception and cognition (Sallat, 2018, pp. 144 ff.). Early stages of synchronisation of music and movement can be observed in children **between 18 months and 2 years old**. Toddlers still find it hard to grasp gaps in music, filling them with continuous movement. And although they have already developed a feeling for metre and rhythm by the age of 5, they are still not able to synchronise their movements to music (e.g. rhythmically precise marching or perfect clapping in time), which depends on the physiological maturity of nerve pathways and synapses (Bullerjahn, 2010, p. 59). **From the age of 2**, children can sing along to a song without understanding musical rules or the words, showing considerable ability to imitate (ibid., p. 59). While playing, they fluidly switch between forms of talking and singing (Stadler Elmer, 2008, p. 147). **From the age of 3** they increasingly replace their spontaneous singing with songs and although they do not yet possess a firm feeling for tonality and keys, they are increasingly able to sing entire songs. **From the age of 4**, children clearly demonstrate the ability to learn songs and acquire a growing repertoire of songs, which corresponds with their linguistic development. With increasing linguistic abilities, most children can correctly recite songs **from the age**

of 5 (Sallat, 2018, p. 141). Many of the complex musical skills children acquire at kindergarten and primary school age are at a level observed in adults by the time they are **10 or 11**, although the window between **6 and 8** seems particularly conducive to learning to play an instrument well (Degé & Roden, 2018, p. 157).

Stadler Elmer, Stefanie (2008). *Entwicklung des Singens*. In Herbert Bruhn et al. (Eds), *Musikpsychologie*. Das neue Handbuch (pp. 144-161). Reinbek: Rowohlt.

Degé, Franziska & Roden, Ingo (2018). *Entwicklung musikalischer Fähigkeiten: Kindergarten und Grundschule*. In Andreas Lehmann & Reinhard Kopiez (Eds), *Handbuch Musikpsychologie* (pp. 151-179). Göttingen: Hogrefe.

THE DEVELOPMENT OF MUSICAL PREFERENCES

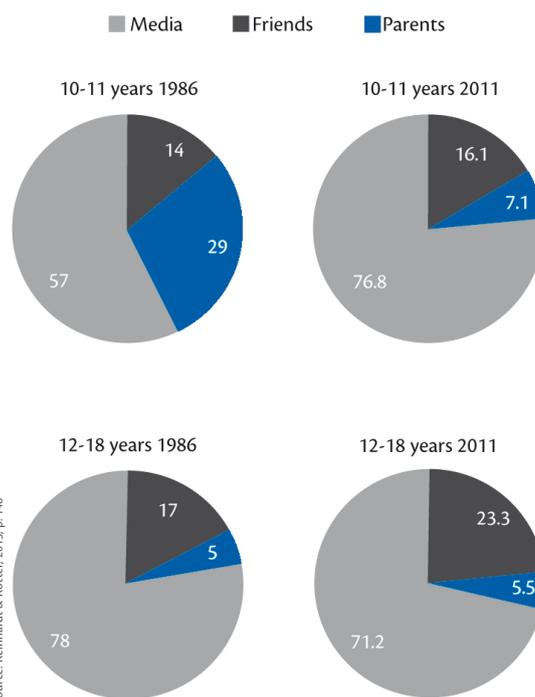
The “open-earedness” of young children

Musical preferences are subject to life-long developmental and transformational process and are shaped by individual experiences (Lamont & Hargreaves, 2021, S. 131 f.). Their foundations are laid during childhood. There are several studies showing that young children in particular are usually open to and curious about hitherto unfamiliar types of music (Louven, 2011, pp. 48 ff.). David Hargreaves (1982) coined the phrase “open-earedness” to describe this phenomenon, offering the widely acclaimed hypothesis that younger children are more open (“open-eared”) towards music that from an adult perspective is considered unconventional. Hargreaves assumed that early childhood assessments of music are not yet influenced by cultural and normative standards. During primary school age however, open-earedness decreases and a standardised taste in (pop) music sets in towards the end of primary school (Cho et al., 2020, p. 391). Several studies have since been conducted to test this hypothesis experimentally and to determine the point at which

open-earedness decreases with greater precision (cf. the overview in Lamont & Hargreaves, 2021, p. 137 f.). For instance, a series of studies investigated German children's openness to music as they grow older (Schellberg & Gembris, 2003; 2004; Gembris et al., 2014). Audio questionnaires with sample tracks were used to investigate the children's reaction to the musical mainstream (historical and current pop), classical music (instrumental and opera), and experimental and non-European forms of music (avant-garde and ethno). The samples were listened to by primary school pupils together in class; the children had to record how much they liked each track on a 5-point scale. The results demonstrate that preferences changed dramatically with age: after the second and third school year, i.e. from the ages of 8 to 9,

mainstream samples received the highest scores, while classical and experimental music were sometimes unceremoniously rejected. Gembris and Schellberg also noted clear gender differences: while the girls surveyed gave pop music and classical music higher scores than the boys, the converse was found for experimental music. This area remains controversially discussed; follow-up studies (e.g. Kopiez & Lehmann, 2008) were not able to confirm these gender-based differences in open-earedness.

A long-term study (Louven, 2011) comparing the open-earedness of primary school children of a special string instrument class with their non-playing peers from a regular class found that the former liked pop and classical music in equal measure during their entire time at primary school, while the latter were much more negative in their assessment of classical and avant-garde/ethno music in comparison with pop music from the second school year on. Longitudinal studies have shown



III. 1: How did you get to know your piece of music? A comparison of the responses in 1986 and 2011 by 10- to 11-year-olds and 12- to 18-year-olds

that active music making promotes the openness towards non-mainstream music (Cho et al., 2020, p. 393).

A fundamental criticism of studies on open-earedness objects that children's musical open-earedness and musical preference in children are often conflated even though a predilection for certain musical styles and openness to the novel and foreign are 2 independent phenomena. One study (Louven & Ritter, 2012) defined children's open-earedness as their readiness to listen to music even if they do not initially like it, assessing this by observing the length of time primary school pupils voluntarily listened to tracks, and arrived at quite different results. The children (n=160 aged 6 to 11) listened to different samples individually via headphones and software recorded how long each subject chose to listen before skipping to the next track. Only in a second stage were the children asked to assess what they had heard. While the study once again confirmed primary school

children's preference for pop music (which the authors consider "common sense"), it was also observed that there were no significant differences in duration for all the other pieces between school years. There was thus a clear discrepancy between times spent listening voluntarily and increasing rejection of musical styles, which the authors consider to be proof of constant open-earedness in primary school children in terms of readiness to listen to all different kinds of music (ibid., p. 296).

Several studies on musical preferences during adolescence show a connection between musical preferences and identity construction (cf. the overview in Wilke, 2012, pp. 20 ff.). One study showed that primary school children already actively use musical preferences as a tool for processing developmental tasks and that engagement with pop stars and musical genres offers children opportunities for identity negotiation (ibid., p. 218).

A comparison of musical socialisation in adolescents in 1986 and 2011 (Reinhardt & Rötter, 2013) revealed that in 2011, it was mainly the media that determined the development of preferences in 10- to 11-year-olds, while the preteens of 1986 were influenced much more strongly by their parents (III. 1). The authors explained this in terms of changes in media use and the opportunities for exchange on musical preferences via social media (ibid., p. 147).

Lamont, Alexandra & Hargreaves, David (2021). *Musical preferences*. In Andrea Creech et al. (Eds), *Routledge international handbook of music psychology in education and the community*, vol. 1. (pp. 131-145). London: Routledge.

Louven, Christoph (2011). *Mehrjähriges Klassenmusizieren und seine Auswirkungen auf die "Offenohrigkeit" bei Grundschulkindern. Eine Langzeitstudie*. *Diskussion Musikpädagogik*, 50, 48-58.

Hargreaves, David (1982). *The development of aesthetic reactions to music*. *Psychology of Music*, special issue, 51-54.

Cho, Eun, Habibi, Assal & Ilari, Beatriz (2020). "What is your favorite song?" Musical preferences and taste in school-aged children over five years. In Andrea Creech et al. (Eds), *Routledge international handbook of music psychology in education and the community*, vol. 1. (p. 384-395). London: Routledge.

Schellberg, Gabriele & Gembris, Heiner (2003). Was Grundschulkind (nicht) hören wollen. Eine neue Studie über Musikpräferenzen von Kindern der 1. bis 4. Klasse. *Musik in der Grundschule*, 7(4), 48-52.

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Gembris, Heiner, Heye, Andreas & Jeske, Lisa (2014). Replikationsstudien bestätigen das Phänomen der Offenohrigkeit im frühen Grundschulalter. In Wolfgang Auhagen et al. (Eds), *Musikpsychologie* (Vol. 24) (pp. 100-132). Göttingen: Hogrefe.

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Louven, Christoph & Ritter, Aileen (2012). Hargreaves' "Offenohrigkeit" – Ein neues, software-basiertes Forschungsdesign. In Jens Knigge & Anne Niessen (Eds), *Musikpädagogisches Handeln. Begriffe, Erscheinungsformen, politische Dimensionen*. *Musikpädagogische Forschung* (Vol. 33) (pp. 275-299). Essen: Die Blaue Eule.

Wilke, Kerstin (2012). *Bushido oder Bunt sind schon die Wälder?! Berlin: LIT.*

Reinhardt, Jan & Rötter, Günther (2013). *Musikpsychologischer Zugang zur Jugend-Musik-Sozialisation*. In Robert Heyer et al. (Eds), *Handbuch Jugend – Musik – Sozialisation* (pp. 127-155). Wiesbaden: Springer.

Classical music socialisation in adolescents

Although classical music is not one of the most popular genres of music for young people in Germany, younger age groups are certainly interested in experiencing it "live" (concerti Media, 2016, p. 34). One study (Schlemmer & James, 2011) showed that adolescents significantly rate real concert experiences much higher than "classical music" as a mere genre. Nevertheless, according to a representative study (n=4,742 aged 14 and over), in 2016 around two thirds of people who listen to classical music in Germany were aged between 40 and 70, almost 15% were younger than 29, and only around 4% were under 18 (concerti Media, 2016, p. 14). There is equal interest in classical music across genders, whereby classical

music fans have an above-average level of formal education (ibid., p. 6). Classical music is one of the styles about which prejudices and clichés prevail among German adolescents (Bischoff et al., 2015). Nevertheless, the more direct contact adolescents have with the genre, the more strongly they disagree with statements such as "Classical music is something for old people and the upper classes" (ibid., p. 232). Here, parents in Germany are important agents of their children's classical music socialisation: 63% of young classical music fans under 18 (concerti Media, 2016, p. 26) came into contact with the genre through their parents or family. Besides parents, grandparents are key family members with respect to a later affinity to classical music (Merz, 2019, p. 101). The media and music schools also provide important impulses (concerti Media, 2016, p. 26). A further decisive factor is one's own musical activity: around 80% of 20- to 29-year-olds who listen to classical music and 63% of under-18s play music themselves (ibid., p. 56). In terms of how music is experienced, it is noteworthy that young classical music fans find it especially emotionally moving in comparison with other age groups (Ill. 2). A qualitative study showed that young people engage with classical music particularly in transitional phases (such as changing schools or jobs) (Kirn, 2016, p. 230).

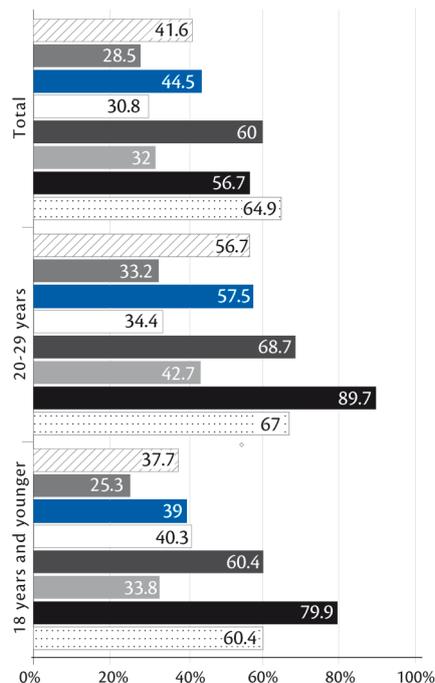
concerti Media (2016). „Typisch Klassik!“. concerti Klassikstudie 2016. Eine Repräsentativbefragung über Interessen, Gewohnheiten und Lebensstile der Klassikhörer in Deutschland. Hamburg: concerti Media GmbH.

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Classical music ...

- ▨ ... is an intellectual challenge for me.
- ... means tradition for me.
- ... is great entertainment.
- ... tells me something about the meaning of life.
- ... is general education for me.
- ... is a form of distraction from everyday problems.
- ... touches me emotionally.
- ▨ ... makes me feel relaxed.



Ill. 2: It is mainly younger target groups that find classical music emotionally moving (concerti Media, 2016, p. 23)

Merz, Julia (2019). *Klassik-Sozialisation Jugendlicher im digitalen Zeitalter: Empirie und Praxis*. In Andreas Heye (Ed.), *Jugend musiziert: Musikulturelle Vielfalt im Diskurs* (pp. 99-112). Münster: LIT.

Kirn, Julia (2016). *Klassische Musik in den Lebenswelten Jugendlicher und junger Erwachsener*. Munich: Alitera.

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