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Kinaesthetic Empathy as Aesthetic Experience of Music: *A Phenomenological Approach*

Jin Hyun Kim

Recently, there has been a growing interest in empirical approaches to aesthetic research questions involving neuroscientific experiments (Chatterjee, 2013; Shimamura and Palmer, 2013; Tinto and Smith, 2014).¹ If research questions are especially concerned with aesthetic experience, methodological considerations for empirical aesthetics deserve thorough discussion, taking into account the fact that it is insufficient to use measurement or observation methods from the third-person perspective to assess phenomenal first-person experience. The relationship between the first-person and the third-person perspectives can only be addressed by means of an appropriate description of first-person experience, which is not accessible through empirical research largely conducted from the third-person perspective and examined based on first-person experiences. This initial thesis of my research leads to the exploration of a phenomenologically oriented empirical method appropriate to addressing the ways in which the aesthetic experience is constituted and the processes underlying that experience, without being necessarily aware of them while aesthetic experience takes place. In the following, a theoretical framework for the empirical investigation of aesthetic experience is introduced before discussing methodological considerations.

1 As a result, the research program “empirical aesthetics” has emerged (see for instance the recently founded Max Planck Institute for Empirical Aesthetics in Frankfurt).

Aesthetic Experience

Focusing on aesthetic experience, aesthetics is understood in this paper as a theory of *aisthesis* (αἴσθησις), sense perception, according to its Greek origin and following recent discussions in which the relationship between aisthesis and aesthetics is the focus and aesthetics is not limited to a theory of the beautiful as well (Welsch, 1987; Böhme, 2001). Alexander Gottlieb Baumgarten, who spearheaded the study of aesthetics in the 18th century, established aesthetics as the science of sensate cognition (*cognitionis sensitivae*), in counterpart to logic, basing the term “aesthetics” on the Greek “aisthesis (αἴσθησις)”, sense perception, and emphasizes that there is clear but confused (not distinct) cognition also belonging to the realm of cognition; he calls this sensate cognition (Baumgarten, 1750). Clear and distinct cognition, considered human cognition since Descartes, is conceived of as ‘upper’ cognition underlying the act of thinking. According to Baumgarten—following Leibniz—the science of such cognition is logic.

In introducing aesthetics, the acts of perceiving and imagining that cannot be fully embraced through human reason also become a subject of the science of cognition. Compared to the theories of cognition at present, sensate cognition is analogous to emotion, which, while considered part of cognition, cannot be reduced to reason-based cognition. Beyond discussion of to what extent questions of aesthetics can be studied within the scope of the current science of emotion, it is important to acknowledge that, in the establishment of aesthetics, sense perception was taken seriously as a subject of the science of cognition, and that a realm of cognition could be conceived of as irreducible to reason. In its origin, the central questions of aesthetics are directed towards clear but confused cognition related to sense perception, including the beautiful and sublime of a work of art—not towards the beautiful itself. In this paper, “aesthetic” is not used as identical with “beautiful”, but as a term comprising every predicate doing justice to aisthesis.

From the perspective of philosophy of consciousness, the aesthetic experience (of music) is based on a synthesis act of consciousness: scattered moments in the sense perception (of music)—(music) aesthesis—in the temporally irreversible succession of the process of artistic shaping or the recipient’s co-shaping are linked with experiencing (*cf.* Augustine;

Kant; Husserl). According to Kant's critique of pure reason (Kant, 1787: B 218ff.), experience is only possible through this linking of perceived moments in term of the synthesis of consciousness. The moments of aisthesis and the aesthetic experience not only take in art perception and apprehension, but also in the process of artistic shaping. Augustine's philosophy of music is related largely to the process of shaping music, especially the temporal process of creation. In his analysis of *memoria* in his *Confessiones*, Augustine allows for an understanding of *memoria* as a principle of the shaping process that constantly unfolds in irreversible temporal succession. According to him, *memoria* is not a reproductive act of information retrieval, but a productive act that spans the present moment, which is passing over time, yet made present in the moments past and moments to come so as to become an object of aisthesis, and links them together to constitute a unity of aesthetic experience.

If we understand musical units not in terms of what can be called "hyperchronic" (cf. Luckner, 2007), i.e. stable beyond a given temporal context of a musical event or boundaries of a musical piece, but in terms of what can be called interchronic,² related to each other through irreversible temporal succession, the aesthetic experience of music can then be conceived of as emerging and unfolding continuously in the process of music-making or music perception over time. This might provide an explanation of the extent to which a tone for self-exposure (for instance of a baby's instinctive crying) serving to "discharge", not to "stay by" (Dewey, 1934, p. 64) cannot serve to aesthetic experience. The late 19th century musicologist Hausegger contends in his seminal monograph "Music as Expression (*Die Musik als Ausdruck*)" (1887) that, to shape a sound that can be developed further, the impulse should retain its state of arousal. When retaining an aroused state, the affected muscle generally cannot remain in consistent contraction; it thus moves toward periodic activity, in turn influencing the resulting duration, height,

- 2 The German philosopher Andreas Luckner suggests the term 'isochronic' for reference to the intra-musical relation of musical units tied to time (LUCKNER, 2007, p. 45, 47). Taking into account the current discussion on musical rhythm and meter, in which the term 'isochronic' refers to a periodic process of the same duration and is assigned to musical meter, 'interchronic' is suggested here as a term neutrally referring to the intra-temporal relation of musical units.

and depth of vocalization. (Hausegger, 1887, p. 10-11, 62), forming dynamic expressions of one's aroused states.³ John Dewey contends that

“fulfilling, consummating, are continuous functions, not mere ends, located at one place only. ... [An artist] is in process of completing at every stage of his work. He must at each point retain and sum up what has gone before as a whole and with reference to a whole to come.” (Dewey, 1934, p. 58).

John Dewey's theory on aesthetic experience in *Art as Experience* (1934) explicitly tackles how the experience is based on the mechanisms of action-perception cycle underlying an artist's shaping process. According to Dewey, an artist's shaping process is based on this reciprocal and cumulative relationship between doing and undergoing; this “union between doing and undergoing” (*ibid.*, p. 54) is the basis on which an artist shapes and reshapes their production process to fulfilment or perfection (*cf.* Dewey, 1934, p. 36), and out of which an immediate sense of a unity of aesthetic experience emerges (*ibid.*, p. 52): “The series of doings in the rhythm of experience give variety and movement; ... The undergoings are the corresponding elements in the rhythm, and they supply unity” (p. 58). Such a union also underlies the perception and appreciation of a work of art. Dewey contends that this kind of receptive act “accumulating toward objective fulfilment” goes beyond passivity (p. 54); when perceiving and appreciating an artwork, the beholder (re-)creates the artist's experience of the process of dynamic organization in the work (p. 56).

The coupling of action and perception underlying the aesthetic experience—whether in the shaping or co-shaping process—was addressed much earlier in Theodor Lipps' theory on aesthetic empathy (“*Einfühlung*”), developed in the context of psychological aesthetics at the end of the 19th century (*cf.* Lipps, 1903a). ‘*Einfühlung*,’ the original German term for empathy, was used in the 19th century in a much broader sense than it is currently used in social psychology and cognitive neuroscience (Lipps, 1907); it refers not only to an interpersonal process unmediated by what is normally understood as the rational mode of thinking in current research on empathy, but also to an implicit and

3 There can be the aesthetic experience of a singular sound, if it is shaped, carried forward dynamically (over time) and “worked out to completion” (DEWEY, 1934, p. 64).

immediate process taking place in aesthetic experience and appreciation (Currie, 2011). Lipps' concept embraces the imaginative projection of oneself onto inanimate objects of aesthetic contemplation, thereby relating one's experience to certain properties of an object (Lipps, 1900, p. 415). Following him, the aesthetic object and one's own feelings experienced in conjunction with this object cannot be strictly separated: "I am inwardly in or by an object, not somehow, but with my own personal quality" (Lipps, 1900, p. 416, translated by the author); the "experienced quality of myself appears as a certainty of the aesthetic object" (*ibid.*, p. 417). Moritz Geiger characterizes an (aesthetic) experience based on empathy as being unified between the "I" observing an object and the "I" felt into the object (Geiger, 1911, p. 37, translated by the author); in other words: There is the correspondence between "the objectified and ongoing (actual) personality" (Lipps, 1900, p. 420), which allows for a "unity of activity and objectivity" (p. 422).

For Lipps, feeling into an aesthetic object or another person is based neither on the recognition of an aesthetic object's significant properties nor on subjectively felt emotions induced by such properties, but on "inner doing" (Lipps, 1903b, p. 186) or "inner imitation" (p. 191)—more precisely, "my experienced doing" (p. 187), which he characterizes as a kind of image of movement. Lipps distinguishes this from what he terms organic sensations such as muscle contraction or relaxation (Lipps, 1903b), at present considered kinaesthesia. To characterise the image of movement Lipps introduced as a basis for aesthetic empathy, Edward Bradford Titchener—who coined 'empathy' as a rendering of *Einfühlung* in *Lectures on the Experimental Psychology of the Thought-Processes* (1909)—used the concept of 'kinaesthetic image', distinguished from 'kinaesthetic sensation'. His metaphorical description of the kinaesthetic image makes its difference from the kinaesthetic sensation clear: "Not only do I see gravity and modesty and pride and courtesy and stateliness, but I feel or act them in the mind's muscle" (Titchener, 1909, p. 21).

Kinaesthetic Empathy

A very recent discourse on kinaesthetic empathy, appropriating choreographic terms in light of a number of neuroscientific studies on the neural mechanisms of the coupling of action and perception, takes up Lipps' notion of inner activity underlying aesthetic empathy (Foster,

2010; Reason and Reynolds, 2010; Reynolds and Reason, 2012b). ‘Kinaesthetic empathy’ refers to “the ability to experience empathy merely by observing the movements of another human being” (Reynolds and Reason, 2012a). This construct is linked to the discovery of mirror neurons and further investigations on human mirror mechanisms indicating that action simulation is involved in empathy, i.e. feeling into others, while observing them—albeit not accompanied by the execution of own action (Decety and Ipkes, 2009). It is however not clear yet precisely what is meant by ‘kinaesthetic’ in that context. In a very recent compendium on kinaesthetic empathy, Dee Reynolds contends that the concept “took on particular prominence in relation to dance and the aesthetics of movement” (Reynolds and Reason, 2012b, p. 19). The American dance critic John Martin’s proposal in the 1930s—that watching dance involves “spectators’ muscular and emotional responses to watching dancers” (Martin, 1939, p. 49; 1936, p. 117, cited in Reynolds and Reason, 2012b, p. 19), which in turn relies on “the faculty of ‘inner mimicry’” (Martin, 1939, p. 55, cited in Reason and Reynolds, 2010, p. 54)—serves as a background of the current discourse on kinaesthetic empathy in the context of dance research (Foster, 2010; Reason and Reynolds, 2010; Reynolds, 2012; Reynolds and Reason, 2012b). It can be noted that, when considering the difference between kinaesthetic sensation and image discussed by Titchener, Martin’s proposal places emphasis on the kinaesthetic sensation having a physiological dimension while watching dance performance. On the other hand, his emphasis on the faculty of ‘inner mimicry’ is based on Lipps’ concept of ‘inner doing’ or ‘inner imitation’, which is however clearly distinguished from kinaesthetic sensation. Therefore, discourse on kinaesthetic empathy working with both Lipps’ empathy and Martin’s kinaesthetic sensation and inner mimicry needs to be elaborated, taking into account the relationship between kinaesthetic sensation and kinaesthetic image in the context aesthetic empathy (*cf.* Kim, 2012).

Kinaesthesia is, according to the Greek, the sense (aisthesis) of movement (kineô) comprising proprioception, the sense of the position of parts of the body. This is involved in both the execution and the imagination of action (Berthoz and Petit, 2008 [2006]) as well as in perception—in case of exteroception, regardless of which kind of sense: sight, hearing, taste, smell or touch. Kinaesthesia is different from both

exteroception and interoception, but at the same time acts as a mediator between the inner and the outer (*cf.* Husserl, 1997).

Sense perception involving kinaesthesia is in line with Maurice Merleau-Ponty's phenomenological theory of perception tackling the relationship—based on a non-linear, circular causality between an organism and its environment (*cf.* Merleau-Ponty, 2002 [1945]). The lived body as the very space of perception is a fundamental mode of being-in-the-world, unifying the self and objects (*cf.* Zaner, 1971, p. 161-162); kinaesthesia is a sense perceived by the lived body that cannot be observed from an external observer point of view. Merleau-Ponty's phenomenology of perception, in which the chiasmus of the self and the world comes to the fore, focuses on the coupling of action and perception; according to Merleau-Ponty, perception is not a passive act processed through bodily mediation of sensory data, but an active process involving motor actions (Merleau-Ponty, 1963 [1942]; Merleau-Ponty, 2002 [1945]). Kinaesthesia as a sense of motor actions guiding different senses in perception can therefore be seen as a model for the coupling of action and perception underlying both motor actions and perception. As a result, the involvement of kinaesthesia in perception is evidence for the coupling of motor and sensory processes underlying embodied cognition (*cf.* Varela, Thompson and Rosch, 1991; Clark 1997; Calvo and Gomila, 2008).

Keeping in mind that aesthetics as discussed in this paper is understood as a theory of aisthesis, it should be noted that sensate cognition cannot be reduced to the processing of sensory data, but rather should be conceived of as a process mediating sensory perception and sense-based experience. Taking for granted the involvement of kinaesthesia in perception mediated by different senses, the question raised at this point is whether and how kinaesthesia plays a role for aisthesis.

In recent neuroaesthetic studies, the aesthetic idea related to the concept of kinaesthetic empathy has served as a theoretical framework for experimental aesthetics, though the term 'kinaesthetic empathy' has not been used explicitly; rather mechanisms of empathy are related to those of action simulation and of kinaesthesia. Up to the present, such neuroaesthetic experiments have been conducted on people beholding visual arts (Di Dio *et al.*, 2007; Di Dio and Gallese, 2009; Gallese, 2010) and dance performances (Calvo-Merino *et al.*, 2006, 2008; Jola

et al., 2011, 2012). Where the aesthetic concept of “the beautiful” has mostly dominated neuroaesthetics (*cf.* Zeki, 1999; Kawabata and Zeki, 2004; Jacobsen *et al.*, 2006), these studies center on empathic aisthesis. In the visual arts, David Freedberg and Vittorio Gallese (2007) consider both felt activation of the muscles as reported by viewers of Michelangelo’s sculpture *Prisoners*, and embodied simulation of the motor program elicited by the viewer’s empathic engagement with Caravaggio’s painting *Incredulity of Saint Thomas* (1601-1602). Freedberg and Gallese characterise the former as “bodily empathy” (Freedberg and Gallese, 1997, p. 197) and the latter as “empathetic simulation of the somatic feeling” (p. 201). Likewise, Cinzia Di Dio, *et al.* (2007), investigating neural activity in viewers of Classical and Renaissance sculptures, reported the elicitation of activation in the ventral premotor and posterior parietal cortices. Researchers involved in this study interpreted the result—in line with the studies on human mirror mechanisms—as an evidence of motor resonance taking place during observing those sculptures in congruence with “the implied movements portrayed in the sculptures” (Di Dio and Gallese, 2009, p. 683).

For the performing arts, especially dance, Beatriz Calvo-Merino *et al.* (2006), conducted several experiments comparing the perception of dance styles in regard to the audience’s conversancy or lack thereof, and of gender-specific dance movements whose visual similarities and motor similarities were used for experiment design (Calvo-Merino *et al.*, 2006); the results, from functional magnetic resonance imaging (*fMRI*), showed activation of areas such as the premotor cortex (ventral and dorsal sections), the superior parietal lobe and interior parietal sulcus in the parietal cortex, and the posterior of the superior temporal sulcus that belong to the action observation network. Aesthetically responsible brain areas related to dance perception—“sensorimotor aesthetic tuning during observation of dance movements” (Calvo-Merino, 2010, p. 169)—have also been identified in the premotor cortex in the right hemisphere and visual cortex bilaterally (Calvo-Merino *et al.*, 2008). Corinne Jola *et al.* (2011) investigated the relationship between kinaesthetic sensation (“phenomenological experience”) and motor simulation (“mirror neuron activity”) (Jola, 2010, p. 219), starting from a study on dancers’ expertise in proprioception and conducting further neurophysiological experiments on the (aesthetic) perception of dance in combination

with subjective reports on kinaesthetic sensation as experienced during observation of different dance movements (Jola *et al.*, 2012).

In the context of neuroaesthetics, the role of kinaesthesia for aisthesis has been implicitly and explicitly discussed in relation to the simulation of motor action, which is based on neural mechanisms of the coupling of action and perception. However, the difference between kinaesthetic sensation and kinaesthetic image up to the present has not been discussed as thoroughly as other terms. Bodily empathy as a kind of empathic aisthesis (Freedberg and Gallese, 2007) and kinaesthetic sensation as a mechanism of kinaesthetic empathy (Jola, 2010; Jola *et al.*, 2012) refer to something neither originally meant by ‘empathy’ nor considered as a core mechanism of empathy; however, both phrases are used to describe kinaesthetic dimensions in conjunction with the coupling of action and perception underlying aesthetic experience of the fine arts. Hence, given that kinaesthesia serves as a fundamental of aesthetic empathy, a necessary step forward is a more thorough consideration of to what extent kinaesthesia is involved in aesthetic experience.

Phenomenological Interviews with Various Musicians

To investigate to what extent kinaesthesia is involved in aesthetic experience—and more precisely: whether kinaesthetic sensations or kinaesthetic images underlie the aesthetic experience of music, several phenomenological interviews with various musicians have been conducted. These interview studies aim to develop interview techniques appropriate to investigating the aesthetic experience of music taking place during the process of shaping music, which is inaccessible as first-person experience yet can be retrospectively assessed by an interview. First-person experience, which is not directly accessible to a third person, is often neither immediately accessible to its owner (*cf.* Vermersch, 1994; Petitmengin, 2006). Though first-person experience is a rapid process, it has a structure and can become explicit using certain techniques such as meditation (*ibid.*).

Phenomenological interview techniques, the main foundation for the interview studies introduced here, have been developed in France beginning in the mid-1990s within the scope of a neurophenomenological research program (Varela, 1996; Lutz *et al.*, 2002; Lutz and Thompson, 2003) and further by the French philosopher Claire Petitmengin

(Petitmengin-Peugeot, 1999; Petitmengin, 2006, 2007, 2011; Petitmengin *et al.*, 2006, 2007, 2009; Petitmengin and Bitbol, 2009) to address the “explicitation interview” (Vermersch, 1994). The first-person reports reveal multifaceted aspects related to one’s own experience proceeding over time, and are not purely subjective, since these reports on first-person experience are accomplished with the help of another person (interviewer). The interviewer acts as a mediator who helps participants reflect on their experience in a conscious way and make it explicit. I-descriptions are collected from the second-person perspective. The second-person perspective is intersubjective, allowing access to another person in a social context; this offers access to data closer to the first-person perspective ⁴, a perspective on one’s own experience, than the third-person observation of others can provide. The phenomenological interview techniques allow for retrospection directly related to the aesthetic experience of music that has just taken place during the process of shaping music; this is recalled, for instance, in terms of specific perception modalities, bodily attention and conscious images, etc. This kind of interview may take the role of the reconstruction of memory processes.⁵

Up to the present, I have explored the phenomenological interview techniques based on the second-person perspective in four different studies. In this section, I only describe the procedure and results of the case study that is conducted in collaboration with the *Institute of Psychoacoustics and Electronic Music (IPEM)* at the University of Ghent, in which I first used the phenomenological interview techniques. This case study was carried out to test the hypothesis that the mechanisms of empathy underlie musical expressiveness, as experienced by professional musicians during the ongoing processes of their performance; the mechanisms of empathy were only indirectly investigated, through modifying the performance conditions constraining the performer’s

4 GALLAGHER and SØRENSEN (2006, p. 121) point out that some phenomenologists distinguish between introspection and the phenomenological method; the latter embraces intersubjectively accessible modes of experience, whereas the former concerns the participants’ private and psychological experiences.

5 In the philosophy of consciousness, a synthesis act of consciousness is conceived of as underlying memory processes (to name a few philosophers relevant to the theme of research proposed here: Augustine, Kant, Husserl).

coordination of auditory perception and motor action. A primary research question concerned the role of empathy in the process of shaping music for the performer's self-experience of musical expressiveness during the ongoing process of performance—whether an empathic process serves as a basis for how the performer experiences the performance as expressive. Musical performance founded on an empathetic process allows the performer to feel herself/himself into the performance. A hypothesis of the case study was that musical performance by professional musicians would not merely be an act of expression of the performer's own emotions or imagined emotions, but rather a process of going along with music, devotion of the self to the music, largely based on automatic processes available through embodied knowledge of the relationships between how to play, how this playing sounds, and how that sound feels.

To test this hypothesis, a sight-reading performance and a practiced performance of the same piece, which the experimental subjects had never previously played, were taken as two different conditions of musical performance, which may impact the empathic process underlying musical performance. The case study was carried out with three professional musicians—a gamba player, clarinetist, and singer. They were instructed to play unfamiliar two pieces, the style of which they were conversant with. Each piece was first sight-read, then reperformed after 20 minutes worth of practicing. The subjects' self-reports on musical expressiveness experienced during the ongoing processes of musical performance were collected through post-experimental phenomenological interviews. In addition, the musicians' first-person reports were taken into account when analyzing the musicians' bodily micro-gestures as recorded by motion capture devices (*cf.* Kim, 2010; Kim *et al.*, 2010).

The interviewer's task was to direct the musicians' recall into their experiences only in relation to the concrete events occurring during their performance, and to help them make their experiences explicit—not based on knowledge of how to perform a piece, but instead recalling what concrete processes related to experienced musical expressiveness look like. To compare the collected self-reports to the gestural data measured from a third-person perspective, both the sight-reading and practiced performances of each performer were filmed using a *Casio EX-F1* digital camera, enabling a high-speed video recording at 300fps to observe the performers' micro-gestures in detail, and a motion capture system (*Optitrack, Natural Point*) installed in the *IPEM* laboratory at the

University of Ghent to analyze significant performance micro-gestures. My focus on performance micro-gestures was based on my assumption that there would be only very slight differences in overall macro-gestures between the same performer's sight-reading and practiced performance, given that professional musicians are capable of playing music on sight in an expressive manner when they are familiar with the musical style.

In this paper, I largely report on the result of the interviews, and only partially treat the more significant results of the analyses of the test persons' micro-gestures.⁶ Oral interviews with each performer were carried out based on this informal questionnaire, which was completed by each performer after the musical performances:

1. How do you judge your sight-reading performances? Were they more than simple sight-reading performances? If either yes or not, how did you notice this?
2. Did you consciously monitor your sight-reading performances? If yes, what did this monitoring look like?
3. Were there any bodily or visceral reactions during your sight-reading performances? If yes, do you remember what they felt like?
4. Did you experience your sight-reading performances as expressive? If either yes or not, what did your experience look like?
5. Did you find your practiced performances expressive? If either yes or not, what did your experience of musical expressiveness look like?
6. Did you consciously monitor your practiced performances? If yes, what did this monitoring look like?
7. Were there any bodily or visceral reactions during your practiced performances? If yes, do you remember what they felt like?

The gamba player answered that he consciously monitored technical aspects during the sight-reading, especially left hand position with regard to fingering techniques. During the practiced performance he noticed "the swaying movement of [his] shoulder," which he characterizes as a natural movement accompanying his performances. During the sight-reading, some visceral reactions indicating tension and stress were noticed instead of bodily reactions that felt natural. After practice,

6 See KIM *et al.*, 2010 for a detailed discussion on the analyses of the test persons' micro-gestures in connection with the audio analysis.

he did not notice any visceral reactions, but experienced “micro-level expressiveness” emerging during the ongoing processes of musical performance.

The clarinetist reported that he had “flow experiences” during the practiced performance, guided by “unconstrained and effortless feelings.” He was not aware of his kinaesthetic sensations during the ongoing processes of musical performance, except when something wrong occurred – for instance, when “bodily movements interfere with instrumental techniques.” In this case, he consciously concentrates on “proximal bodily actions” and “kinesthetic feedback” rather than “aural feedback.” He consciously monitored the sight-reading and noticed musical expressiveness due to this monitoring, instead of feeling his bodily movements going along with the ongoing processes of musical performance as in the case of the practiced performances.

The singer found the sight-reading significantly less expressive than the practiced performance. During the sight-reading performances, she was aware of her “nervousness and bodily tensions”, only focusing on relevant “intramusical features” of the music. During the practiced performances, she could consciously monitor some changes of her facial expressions and hand gestures corresponding to her “prepared emotional intentions,” which were confirmed through “aural feedback”. On the other hand, she noticed “[her] breathing and muscle activities automatically in the practiced performances, although [she] is usually only aware of and consciously monitors these when they somehow interfere.”

Some common experiences all three musicians emphasize can be summarized as follows: The subjects could feel themselves into their own performance in an expressive way when the playing actions and perceptions of produced sounds via corporeally-based sensations matched well. This process of empathy was not based on conscious monitoring through reasoning, but was achieved pre-reflectively. Only when something wrong occurred, the performer was explicitly aware of the ongoing process; at that point, the performer tried to improve the performance by focusing on this process, overshadowing the empathic going along with the music. Bodily and visceral reactions which were felt as negative, in the sense that the musicians would not be used to experiencing such reactions in their normal performance situations, were noticed during the sight-reading, indicating tension,

stress or concentration on unfamiliar music. However, in the practiced performances, all three musicians pre-reflectively felt their natural bodily movements going along with the ongoing processes of musical performance. Performative expressiveness resulting from the performance in which the performer felt unconstrained or less constrained, and more attuned with the ongoing processes of performance, was experienced significantly more during the practiced performances compared to the sight-reading performances; this was due to the newfound familiarity with the music piece from both technical and interpretative points of view.

The results of interviews were related to the analyses of the gamba player's and the clarinetist's corporeal micro-gestures; this was not done with the singer, as she used comparably few micro-gestures under the sight-reading and practiced performance conditions. The interview with the singer indicates that the singer's respiration and muscle tension should be measured to find results significant in comparison to the gamba player's and clarinetist's corporeal micro-gestures as analyzed by the motion capture device. For the instrumentalists, significant micro-gestures which occurred at the beginning and end of a musical passage, and differed from each other under the two performance conditions, were first manually annotated from the high-speed video. Motion capture data were then used to compare these gestures between both performances.

The gamba player's significantly different micro-gestures were related to the upper left arm. It remained static except for fingering movements in the sight-reading performance, whereas it tended to widen or move outwards and inwards in the practiced performance. These results can be interpreted in context with the gamba player's first-person report on tension and stress as felt during the sight-reading and on 'naturally' swaying shoulder movements noticed by him during the practiced performances. A small range of the gamba player's left arm movements analyzed in the sight-reading indicates his concentration on left finger positions during that performance, which as he reported prevented him from going along with the music in a 'natural' way. On the other hand, a wider range of motion in his left arm accompanied an increase in duration of the corresponding notes in the practiced performance; this reflects the gamba player's report on the feeling of going along with the practiced performance expressively, while noticing his swaying shoulder.

For the clarinetist, the observed micro-gestures consist of vertical and horizontal movements, raising or lowering the clarinet, and turning the clarinet left or right. The absolute height of the clarinetist's bell, indicating a higher velocity, was larger in the practiced performance compared to the sight-reading. This result corresponds to the clarinetist's report on musical expressiveness as pre-reflectively felt by him during the practiced performance compared to the musical expressiveness reflectively monitored during the sight-reading. Taking into account his self-reported "concentration on the timing and rhythm during both performances", the changes in dynamics—which he apparently did not consciously pay attention to—seem to be related to performative expressiveness as pre-reflectively felt by him during the ongoing processes of the practiced performance.

In this case study, it could be ascertained that kinaesthesia is involved in aesthetic experience in general and in aesthetic empathy in particular, in the sense that the musicians pre-reflectively felt their natural bodily movements going along with the ongoing processes of musical performance. But it has not become clear whether there is a difference between kinaesthetic images and kinaesthetic sensations while experiencing kinaesthetic empathy. Though kinaesthetic sensations normally guide each process of shaping music, they were considerably noticed in the sight-reading performances rather than in the practiced performances. The practiced performances as experienced by the musicians was barely monitored in the consciousness, but rather felt attuned with and guided by expressive corporeal micro-gestures used pre-reflectively by the musicians. The musicians could retrospectively recall the feeling of their bodily movements going along with the ongoing processes of musical performance. Nevertheless, it does not seem that this is experienced in terms of kinaesthetic sensations. Further interview studies with other musicians I have conducted indicate that aesthetic empathy is experienced, primarily guided by kinaesthetic images. To find a generic structure of kinaesthetic empathy, however, it is necessary to carry out more studies. As a next step, it would also be desirable to investigate the aesthetic experience of music in the process of music perception to compare with that in the process of music making.

References

- BAUMGARTEN A. G. (1750), *Aesthetica*, Hildesheim: I. C. Kleyb.
- BERTHOZ A. and PETIT J.-L. (2008) [2006], *The physiology and phenomenology of action*. New York: Oxford University Press.
- BÖHME G. (2001), *Asthetik: Vorlesungen über Ästhetik als allgemeine Wahrnehmungslehre*. Munich: Fink.
- CALVO P. and GOMILA T. (eds.) (2008), *Handbook of cognitive science: An embodied approach*, Amsterdam: Elsevier.
- CALVO-MERINO B. (2010), "Neural mechanisms for seeing dance", in: BLÄSING B., PUTTKE M. and SCHACK T. (eds.), *The neurocognition of dance: Mind, movement and motor skills*, New York: Psychology Press, p. 153-176.
- CALVO-MERINO B., GRÈZES J., GLASER D. E., PASSINGHAM R. E., and HAGGARD P. (2006), "Seeing or doing? Influence of visual and motor familiarity in action observation", *Current Biology*, 16, p. 1905-1910.
- CALVO-MERINO B., JOLA C., GLASER D. E., and HAGGARD P. (2008), "Towards a sensorimotor aesthetics of performing art", *Consciousness and Cognition*, 17(3), p. 911-922.
- CHATTERJEE A. (2013), *The aesthetic brain: How we evolved to desire beauty and enjoy art*, New York: Oxford University Press.
- CLARK A. (1997), *Being there: Putting brain, body and world together again*, Cambridge, MA: MIT Press.
- CURRIE G. (2011), "Empathy for objects", in: GOLDIE P. and COPLAN A. (eds.), *Empathy: Philosophical and psychological essays*, Oxford : Oxford University Press, p. 82-96.
- DECETY J. and IPKES W. (2009), *The social neuroscience of empathy*, Cambridge, MA: MIT Press.
- DI DIO C. and GALLESE V. (2009), "Neuroaesthetics: A review", *Current Opinion in Neurobiology* 19, p. 682-687.
- DI DIO C., MACALUSO E., RIZZOLATTI G. (2007), "The golden beauty: brain response to classical and renaissance sculptures", *PLoS ONE* 2(11), p. e1201.
- FOSTER S. L. (2010), *Choreographing empathy: Kinesthesia in performance*, London / New York: Routledge.
- DEWEY J. (1934), *Art as experience*, New York : Penguin.
- FREEDBERG D. and GALLESE V. (1997), "Motion, emotion, and empathy in esthetic experience", *Trends in Cognitive Sciences*, 11(5), p. 197-203.

- GALLAGHER S. and SØRENSEN J.B. (2006), "Experimenting with phenomenology". *Consciousness and Cognition*, 15(26), p. 119-134.
- GALLESE V. (2010), "Mirror neurons and art", in: BACCI F. and MELCHER D. (eds.) *Art and the senses*, Oxford: Oxford University Press, p. 441-449.
- GEIGER M. (1911), „Über das Wesen und die Bedeutung der Einfühlung“, in: SCHUMANN F. (ed.) *Bericht über den IV. Kongreß für experimentelle Psychologie in Innsbruck vom 19 bis 22. April 1910*, Leipzig: Barth, p. 29-73.
- HAUSEGGER F. v. (1885), *Die Musik als Ausdruck*, Vienna: Carl Konegen.
- HUSSERL E. (1997), *Thing and space: Lectures of 1907*, transl. Rojcewicz R., Dordrecht: Kluwer Academic Publishers.
- JACOBSEN T., SCHUBOTZ R.I., HOFE L. and CRAMON D.Y. (2006), "Brain correlates of aesthetic judgment of beauty", *Neuroimage*, 29(1), p. 276-285.
- JOLA C. (2010), "Research and choreography: Merging dance and cognitive neuroscience", in: BLÄSING B., PUTTKE M. and SCHACK T. (eds.), *The neurocognition of dance: Mind, movement and motor skills*, New York: Psychology Press, p. 203-234.
- JOLA C., DAVIS A. and HAGGARD P. (2011), "Proprioceptive integration and body representation: insights into dancers' expertise", *Experimental Brain Research*, 213(2-3), p. 257-265.
- JOLA C., ABEDIAN-AMIRI A., KUPPUSWAMY A., POLLOCK F., GROSBAS M. H. (2012), "Motor simulation without motor expertise: Enhanced corticospinal excitability in visually experienced dance spectators", *PLoS ONE* doi: 10.1371/journal.pone.0033343.
- KANT I. (1974) [1787], *Kritik der reinen Vernunft*, Frankfurt am M.: Suhrkamp.
- KAWABATA H. and ZEKI S. (2004), "Neural correlates of beauty", *Journal of Neurophysiology*, 91(4), p. 1699-1705.
- KIM J.H. (2010), "Towards embodiment-based research on musical expressiveness", in: FLACH S., MARGULIES D. and SÖFFNER J. (eds.), *Habitus in habitat I: Emotion and motion*, Bern: Peter Lang, p. 245-260.
- KIM J.H. (2012), "What music and dance share: Dynamic forms of movement and action-based aesthetic empathy", in: SCHROEDTER S. (ed.), *Bewegungen zwischen Hören und Sehen – Movements between hearing and seeing*, Würzburg: Königshausen & Neumann, p. 197-211.

- KIM J. H., DEMEY M., MOELANT D. & LEMAN M. (2010), "Performance micro-gestures related to musical expressiveness", in : DEMOREST S. M., MORRISON S. J. and CAMPBELL P. S. (eds), *Proceedings of the 11th International Conference on Music Perception and Cognition*, Seattle, Washington: Causal Productions, p. 827-833.
- LIPPS T. (1900), „Aesthetische Einfühlung“, *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, 22, p. 415-450.
- LIPPS T. (1903a), *Ästhetik. Psychologie des Schönen und der Kunst. Teil I. Grundlegung der Ästhetik*, Leipzig : Leopold Voss.
- LIPPS T. (1903b), „Einfühlung, innere Nachahmung, und Organempfindungen“, *Archiv für die gesamte Psychologie*, I., p. 185-204.
- LIPPS T. (1907), „Ästhetik“, in DILTHEY W. et al., *Systematische Philosophie: Teil I. Abteilung VI. Die Kultur der Gegenwart*, Berlin : Teubner, p. 349-387.
- LUCKNER A. (2007), „Musik – Sprache – Rhythmus. Bemerkungen zu Grundfragen der Musikphilosophie“, *Musik-Konzepte*, November 2007, p. 34-49.
- LUTZ A. and THOMPSON E. (2003), "Neurophenomenology: Integrating subjective experience and brain dynamics in the neuroscience of consciousness", *Journal of Consciousness Studies*, 10, p. 31-52.
- LUTZ A., LACHAUX J. P., MARTINERIE J. and VARELA F. (2002), "Guiding the study of brain dynamics by using first-person data: Synchrony patterns correlate with ongoing conscious states during a simple visual task", *Proceedings of the National Academy of Sciences* 99(3), p. 1586-1591.
- MARTIN J. (1936), *America dancing: The background and personalities of the modern dance*, New York: Dance Horizons.
- MARTIN J. (1939), *Introduction to the dance*, New York: Dance Horizons.
- MERLEAU-PONTY M. (1963) [1942], *The structure of behavior*, transl. Fisher A. L., Pittsburgh: Duquesne University Press.
- MERLEAU-PONTY M. (2002) [1945], *Phenomenology of perception*, transl. Smith C., London / New York: Routledge.
- PETITMENGIN C. (2006), "Describing one's subjective experience in the second person: An interview method for the science of consciousness", *Phenomenology and Cognitive Science*, 5, p. 229-269.
- PETITMENGIN C. (2007), "Towards the source of thoughts: The gestural and transmodal dimension of lived experience", *Journal of Consciousness Study*, 14(3), p. 54-82.

- PETITMENGIN C. (2011), "Describing the experience of describing? The blind spot of introspection", *Journal of Consciousness Study*, 18(1), p. 44-62.
- PETITMENGIN-PEUGEOT C. (1999), "The Intuitive experience", in: VARELA and SHEAR J. (eds.), *The view from within: First-Person approaches to the study of consciousness*, Exeter, UK: Imprint Academic, p. 43-77.
- PETITMENGIN C. and BITBOL M. (2009), "The validity of first-person descriptions as authenticity and coherence", in: PETITMENGIN C. (ed.), *Ten years of viewing from within: The legacy of Francisco Varela*, Exeter, UK : Imprint Academic, p. 363-404.
- PETITMENGIN C., BAULAC M. and NAVARRO V. (2006), "Seizure anticipation: Are neurophenomenological approaches able to detect preictal symptoms?", *Epilepsy & Behavior*, 9(2), p. 298-306.
- PETITMENGIN C., NAVARRO V. and LE VAN QUYEN M. (2007), "Anticipating seizure: Pre-reflective experience at the center of neurophenomenology", *Consciousness and Cognition*, 16(3), p. 746-764.
- PETITMENGIN C., BITBOL M., NISSOU J.-M., PACHOUD B., CURALLUCCI H., CERMOLACCE M. and VION-DURY J. (2009), "Listening from within", in PETITMENGIN C. (ed.), *Ten years of viewing from within: The legacy of Francisco Varela*, Exeter, UK: Imprint Academic, p. 252-284.
- PIGMAN G.W. (1995), "Freud and the history of empathy", *The International Journal of Psycho-Analysis* 76(2), p. 237-256.
- REASON M. and REYNOLDS D. (2010), "Kinesthesia, empathy, and related pleasures: An inquiry into audience experiences of watching dance", *Dance Research Journal* 42(2), p. 49-75.
- REYNOLDS D. (2012), "Kinesthetic empathy and the dance's body: From emotion to affect", in REYNOLDS D. and REASON M. (eds), *Kinesthetic empathy in creative and cultural Practices*, Bristol: Intellect, p. 121-136.
- REYNOLDS D. and REASON M. (eds.) (2012a), *Kinesthetic empathy in creative and cultural Practices*, Bristol: Intellect.
- REYNOLDS D. and REASON M. (2012b), "Introduction", in: REYNOLDS D. and REASON M. (eds.), *Kinesthetic empathy in creative and cultural Practices*, Bristol: Intellect, p. 17-25.
- SHIMAMURA A.P. and PALMER S.E. (2013), *Aesthetic science: Connecting minds, brains, and experience*, New York: Oxford University Press.

- TINTO P.L. and SMITH J.K. (2014), *The Cambridge handbook of the psychology of aesthetics and the arts*, Cambridge: Cambridge University Press.
- TITCHENER E.B. (1909), *Lectures on the experimental psychology of thought-processes*, New York: The Macmillan Company.
- VARELA F.J. (1996), "Neurophenomenology", *Journal of Consciousness Study* 3(4), p. 330-349.
- VARELA F., THOMPSON E. and ROSCH E. (1991), *The embodied mind: Cognitive science and human experience*, Cambridge, MA: MIT Press.
- VERMERSCH P. (1999), "Introspection as practice", in: VARELA F.J. and SHEAR J. (eds.), *The view from within: First-person approaches to the study of consciousness*, Exeter, UK: Imprint Academic, p. 17-42.
- WELSCH W. (1987), *Aisthesis: Grundzüge und Perspektiven der Aristotelischen Sinneslehre*, Stuttgart: Klett-Cotta.
- ZANER R.M. (1971), *The problem of embodiment: Some contributions to a phenomenology of the body*, The Hague: Martinus Nijhoff.
- ZEKI S. (1999), *Inner vision: An exploration of art and the brain*, New York: Oxford University Press.