Different Attitudes of Expressive Movement Awareness in Professional Musicians

Annamaria Minafra(✉)

Conservatorio "N. Piccinni", Bari, Italy
a.minafra.14@alumni.ucl.ac.uk

Abstract. This chapter explores professional musicians' awareness of expressive bodily movements, referring to Godøy's concept of *sound-action awareness* in music. Three professional musicians (a pianist, a violinist, and a guitarist) performed three tasks, each corresponding to a phenomenological reduction. Data were collected using a phenomenological approach through semi-structured interviews, observations, and audiovisual recordings. The analysis revealed three different attitudes to expressive movement awareness. The pianist showed theatrically unsynchronised expressive movements, with her musical intentions remaining at a level of pre-reflective self-awareness, perhaps due to her lack of introspective competence. The violinist became aware of his body parts involved in playing but was unaware of his performed expressive movements. The guitarist gradually reduced the expressive movements to achieve optimal performance. This study may encourage expert musicians to explore new practising procedures by developing body self-awareness. Self-reflecting on movement and its kinaesthetic feedback may contribute to achieving sound-action awareness in music, positively affecting musicians' performance and enabling them to self-correct inappropriate postures.

Keywords: Professional musicians · sound-action awareness · expressive movements · phenomenological approach

1 Introduction

Musicians become experts after years of practice (Ericsson et al. 2018; Hallam 2008). They achieve a high degree of fluency and automaticity by embedding expressive bodily movements within technical movements (Davidson 2005, 2011). When performing, musicians are mentally free and able to manage aspects 'in the moment' related to expressiveness or other problems that could emerge (Davidson and Malloch 2009), often through unconscious or pre-reflective self-awareness (Petitmengin et al. 2017). They can execute their movements effortlessly and intuitively as if unaware of their body parts while intentionally performing without any introspective process (Montero 2016). They perform at a non-conscious physiological level during which "movement and postural control are governed by a more automatic process" (Gallagher 2005, p. 73). However, the lack of reflection could undermine the development of movement and body awareness. This may cause musicians to execute unnecessary movements, restricting their chance

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to improve their performance (Montero 2016). When mainly directing their attention to the produced sound, musicians move their bodies while receiving various sensations integral to the musical experience (Godøy 2011, p. 231). This chapter refers to Godøy's concept of *sound-action awareness in music*, which claims that music cognition is a fusion of auditory and motor sensations. From the embodied cognition perspective, this study explores professional musicians' awareness of expressive bodily movements and whether this may assist them in phrasing.

More specifically, this chapter aims to answer the following research questions:

- How can awareness of expressive movements in professional musicians be explored?
- How can awareness of expressive movements be developed?
- How can awareness of expressive movements assist in phrasing?

To address these questions, three case studies from a larger number of cases from the author's Ph.D. dissertation are presented (Minafra 2019). The study is based on a phenomenological approach inspired by (Vermersch 2002) and qualitative thematic analysis by (van Manen 1990; 2014). The chapter starts with an overview of the theoretical foundations of embodied cognition before the case studies are presented and discussed.

2 Kinesthesia, Habits, and Sound-Action Awareness in Music

When performing, musicians reveal and shape "all mental states, both conscious and unconscious" (Davidson and Malloch 2009, p. 565). This includes conveying both technical and expressive information and their musical intentions. Two main types of performance-related body movements have been identified: *instrumental actions* and *expressive movements* (Nusseck and Wanderley 2009). Instrumental actions refer to technical aspects of musical gestures that musicians must learn to reach their expertise, such as fingering, pressure, and energy (Cadoz and Wanderley 2000, p. 73). The instrumental actions include *excitatory actions* that transmit "energy from our bodies to resonating objects such as strings, plates, tubes, and membranes" (Godøy 2011, p. 233) and *modulatory actions* employed to change the sound, such as vibrato, or modify the resonance, such as changing the bow position (Godøy et al. 2006a).

Practising hours every day for years, musicians acquire technical and expressive skills that are expressed through *expressive* or *ancillary movements* (Nusseck and Wanderley 2009). These appear to facilitate performance and are related to motor control and expressiveness (Godøy et al. 2006a). These movements also reveal the body's involvement in performing and communicating expressive musical ideas (Nusseck and Wanderley 2009).

Movement also generates sensations, so-called kinesthesia, which refers "specifically to a sense of movement through muscular effort" (Sheets-Johnstone 2011, p. 73). Kinesthesia occurs spontaneously and is generated by tactile-kinesthetic consciousness. It unfolds in a "spatiotemporal-energic flow of movement each time the person 'moves,' 'does,' and 'accomplishes' something" (Sheets-Johnstone 2020, p. 6). When playing, musicians receive continuous kinesthetic feedback, which stimulates new sensory-motor reactions and generates musical intentions through sound. Changing the quality of these movements affects expressive intentions and the interpretation of music performance (Santos 2019).

The embodied cognition research program maintains that our minds interact in perceiving external stimuli actively and continuously (cf., Varela et al. 1993; Leman 2008; Leman et al. 2018; Lesaffre et al. 2017; Newen et al. 2018; Shapiro 2019; Tomás et al. 2022). Furthermore, knowledge is embodied and cannot be separated from the sensory-motor system (Gallese and Lakoff 2005). During this process, auditory perception appears fundamental to understanding various gestures, actions, and visual information, and it seems that "we can make sense out of what we hear because we guess how the sounds are produced" (Godøy et al. 2006b, p. 258). This spontaneous phenomenon is activated by previously acquired and memorised experiences (Tomás 2022). Musicians' daily practice promotes an independent kind of body memory "consolidated into motor programs [or] muscle memories" (James 2018, p. 4). This is how musicians develop habits, embodied through "implicit memory" (Fuchs 2012). Godøy argues that musicians access sensorimotor information and internal representations by mentally simulating the movements they believe generate that sound:

> to understand musical sound as inseparable from body movement and, more precisely, to understand any sound and/or feature as actually included in some sound-producing action trajectory (Godøy 2011, p. 235).

By directing attention toward an object—in this case, sound—musicians are led to the state of consciousness. This state may relate to what Gallagher (2005) calls "performative awareness," as performers "forget" their bodies. When musicians play without any introspective process, they act through unconscious or pre-reflective self-awareness. This is "an immediate, implicit and irrelational, non-objectifying, non-conceptual and non-propositional self-acquaintance" (Zahavi 1998, p. 23) preceding any reflective act. Furthermore, musicians operate through a body schema system that includes a set of motor programs entailing complex movements and consists of.

> certain motor capacities, abilities, and habits that both enable and constrain movement and the maintenance of posture. It continues to operate, and in many cases operates best, when the intentional object of perception is something other than one's own body (Gallagher 2005, p. 24).

After years of practising, musicians build musical memory related to "procedural memory." Nijs et al. (2013, p. 471) argue that instrument-specific movements "become constituents of the dynamic structure of the body (body schema) and thereby part of the somatic know-how of the musician." However, although "awareness in music [is] an active mental process" (Godøy, 2011, p. 241) in which movement is an essential component, musicians may not be aware of these movements. This has inspired the present study, investigating professional musicians' bodily awareness.

Methods

This chapter focuses on three case studies (Yin 2018)—a pianist, a violinist, and a guitarist—who were part of a larger research project (Minafra 2019). Their subjective experience—"that which appears" (Aspers 2009, p. 1)—was examined by adopting an empirical phenomenological approach to understand the musicians' experience from

a first-person perspective (Martiny et al. 2021, p. 3). Data were collected from multiple sources, semi-structured interviews, observations, and audio-visual recordings, and triangulated in the analysis process (Creswell and Miller 2000). First-person and third-person data were combined, referring to each musician's verbal responses and nonverbal information. The first-person method was carried out through verbalisation and offered easy access to subjective data. Through this procedure, "preverbal and pre-reflective aspects of subjective experience (…) are available for intersubjective and objective (biobehavioural) characterization" (Lutz and Thompson 2003, p. 37). Observation of nonverbal responses provided information for identifying the musicians' intersubjective experiences (Thompson and Zahavi 2007). This lent validation and reliability to the study (Høffding et al. 2022). The methods adopted to answer the research question applied the same procedures and tools and followed the same steps to collect and analyse data; thus, they may lead to conceptual and theoretical generalisations (Petitmengin et al. 2013).

2.1 Interviews

A phenomenological approach was adopted for the semi-structured interviews through which first-person data were collected (inspired by Vermersch 2002; Depraz et al. 2003). Phenomenology facilitates the analysis and understanding of complex aspects of consciousness and investigates how individuals experience reality (Zahavi 2010), where a specific kind of reflection or "attitude" is required to be conscious. This may occur from shifting the focus of attention from the *know-that*—the content of the action—to the *know-how*—the way of performing (Varela 1999). The first-person method offers easy access to empirical subjective data and lets participants become aware of their lived experiences (Vermersch 2002). The focus of the musicians' attention was not on the "what"—content of their experience—but on the "how"—the appearance of this content, which "usually remains unrecognized, unnoticed, or pre-reflective" (Petitmengin 2017, p. 142).

Across the interviews, musicians, re-evoking their experiences by suspending judgments, viewed their own lived experience as an observed object external to them. They moved away from their 'natural attitude' (Finlay 2014) of seeing the world with their "familiar acceptance of it" (Merleau-Ponty 2002, p. xv). In this process, the interviewer—the second person—guided the musicians to reflect on their bodies and movements, along with "slowing down" their mental activity (Petitmengin-Peugeot 2002, p. 47). The interviewer shared the first person's experience intersubjectively, including sensorimotor patterns, sensitivity, emotions, body language, language, and cultural elements (Varela and Shear 2002). While sharing experiences through a structured interview protocol, the subjectivity of the interviewer and interviewee met, generating a reciprocal relationship fundamental to understanding each other's perspectives (Høffding and Martiny 2016). Moreover, to achieve validation, the interviewer monitored the truthfulness of this re-evoking act through nonverbal signals, such as using "the present tense and unfocusing of the eyes" (Petitmengin 2017, p. 142).

2.2 Observation

The second method applied was observation. During the interview, the researcher "can empathetically grasp" and share the participants' bodily experiences by gathering direct information about nonverbal behaviour (Finlay 2006, p. 23). Having a professional musical background, the researcher based the interview questions and the musicians' observations on her embodied experience. She focused on body postures, movements, gestures, and other nonverbal indications that participants expressed when referring to playing or those parts of the body involved in playing that were intrinsically part of their lived experience. This observation was fundamental to exploring how musicians made sense of the experiences they were living during the interview and allowed the researcher to "validate the messages" conveyed through their words (Robson 1993, p. 192). Carried out from a third-person perspective, observation was undertaken in two stages. The first was conducted narratively immediately after each interview through descriptive and reflective field notes related to the musicians' non-verbal behaviours, such as gaze direction, unconscious movements, smiling, gestures, and the main ideas they expressed. The second one was based on the audio-visual recordings considering the existing literature on body language and expressive musical gestures (see Davidson 2005; 2012; Keltner 2005; McNeill 2005).

2.3 Audio-Visual Material

The audio-visual recordings of each interview allowed the researcher to analyse nonverbal behaviour, facilitating a comparison of verbal and nonverbal behaviours during the social interaction (Erickson 2011). Movements and gestures often communicate meanings that words cannot express and contribute to the shaping of utterance (Goldin-Meadow 2003). It was possible to triangulate verbal introspective information and nonverbal data, enabling the researcher to better understand the musicians' behaviour. Each interview was video-recorded in a studio with a clean background, consistent lighting, and a fixed camera near the interviewee (Jensenius 2018).

2.4 Participants

The three musicians (a pianist, violinist, and guitarist) presented in this study are expert musicians, with formal classical music training, who perform regularly. All of them also work as music teachers. When teaching, musicians mainly communicate information verbally to their students. This suggests that music teachers, being used to formalising their thoughts, might be aware of their movements while playing and be able to provide an accurate description of such. The musicians presented in this chapter were chosen because their performance displayed emblematic attitudes in showing expressive bodily movements. The pianist is a woman from Greece, the violinist a man from Spain, and the guitarist a woman from Italy, all between the ages of 36 and 42. At the time of data collection, they all taught in state music schools. To secure their anonymity, the musicians are referred to according to their instrument and a number indicating the order in which they were interviewed in the main study (Minafra 2019). The duration of each interview was between 30 and 40 min.

2.5 Procedure

The musicians were asked to perform three tasks, which involved slight modifications to playing the same piece of music. These tasks aimed to explore.

- whether musicians were aware of their movement (instrumental and expressive movements)
- whether movement awareness could be developed during the tasks
- whether developing awareness of expressive movement could affect performance

Each task represented a phenomenological reduction process in which the interviewer, through a non-judgmental conversation, asked the musicians to describe their experiences with breathing, physical tensions, relaxation, touch, mood, mental images, and anything else they felt important during their performance. Before the interview, the musicians were asked to choose the beginning (an eight-bar phrase) of an easy, slow piece to focus on the produced sound and technical movements. They were asked to perform the piece three times from memory and play it by heart to reduce the cognitive performance load (Watson 2006, p. 536). The musicians chose the following pieces of music:

- Piano-2: Chopin, Phantasie Impromptu No. 4 in C sharp Minor
- Violin-3: Mozart, Adagio Concerto No. 5
- Guitar-3: Smith-Brindle, 'Country dance.' In Guitarcosmos.

The first task consisted of simply performing the piece and immediately describing their feelings. Before performing the second time, the musicians were asked to mentally simulate the performance actions and what they perceived. This mental rehearsal consists of imagining an action without physical execution through "an active process during which the representation of an action is internally reproduced within any overt output" (Malouin and Richards 2010, p. 241). During this practice, complex abilities such as generating mental locomotor activities linked to the memory of sound are activated. They are based on the internal representation of movement previously acquired from a performer's experience (Tomás 2022). Through mental simulation of the movement, the neuronal correlates of action are activated in the brain similarly to when the real action is performed (Gallese 2006).

In the third task, before performing the piece again, musicians were invited to execute it through "air instrument playing," that is, mimicking sound-producing actions in the air as if they were playing the instrument (Godøy et al. 2006b, p. 256). This practice may assist musicians in developing kinesthetic imagination and muscle memory (Liao and Davidson 2016, p. 5), essential aspects of music performance. Immediately after the simulation, without verbalising, they were asked to play the piece again and observe their movements, breathing, sound quality, tensions, kinds of touch, possible images, possible differences with the previous performances, and whatever else they wished to communicate.

2.6 Data Analysis

Data were analysed using phenomenologically oriented qualitative thematic analysis (van Manen 1990; 2014), in which themes emerged from multiple readings of the transcriptions of the musicians' verbal and nonverbal responses. The analysis began by identifying and assembling answers that reflected the groupings of the questions related to each task before transcribing video data. The criteria for transcribing words and gestures were set after watching and re-watching the video many times. It was decided to transcribe only those gestures that referred to the body or parts of the body involved in playing (Minafra 2019). After listening to the interviewer's questions, behavioural components, emotions, and feelings expressed through words and gestures were simultaneously read in connection with each other.

3 Findings

Across the three performances, each musician showed different levels of expressive bodily movement awareness. This led to identifying three main attitudes:

- Piano-2: *Theatralization*
- Violin-3: *Automatic repertoire of expressive movements*
- Guitar-3: *Exploring movements*

These classifications were generated by considering the frequency of three main kinds of expressive bodily movements, such as head nods, trunk sway, and specific instrumental expressive movements exhibited by the musicians while performing the three tasks. To indicate the absence or presence of each specific expressive bodily movement, a quantitative measurement scale was developed: 1 = not at all; 2 = very little; 3 = little; 4 = much; 5 = very much. In the next sections, each of these attitudes will be considered.

3.1 Theatralization

The attitude shown by Piano-2 was classified as *Theatralization.* This definition came from observing her apparent "theatrical" way of swaying in all three performances of the first eight bars of Chopin's Phantasie Impromptu Op. 66. In the first execution (see Figs. 1, 2, 3), she slightly swayed side to side every two sextuplets, accompanied by a little head nod while bending forward. Although these movements are unnecessary for sound production, they seem to facilitate her motor control (Godøy et al. 2006a). They may assist her in keeping time and feeling the pulse better while trying to communicate her involvement in the music to the audience.

Piano-2 scarcely exhibited any forearm lifting and rotation, typical movements for pianists, as her forearms followed the swaying of her trunk. After the first performance in the first verbalisation process, Piano-2 did not mention any movements as if she had not paid attention to them. When asked to describe her feelings, she avoided answering and manifested discomfort, smiling for no apparent reason (Keltner 2005). This response was perhaps provoked because she was unprepared for the questions posed. She reacted as if she misunderstood the question and instead reported positive feelings about the piece.

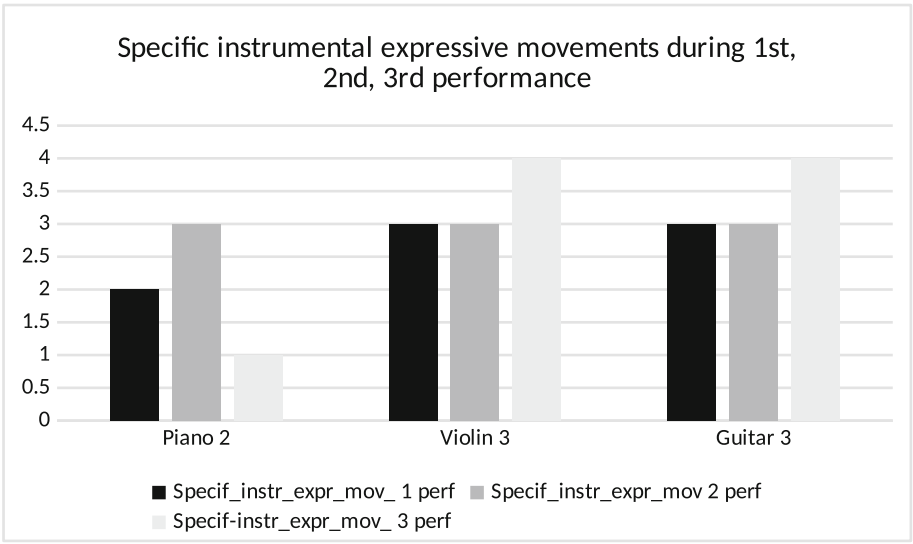

Fig. 1. Specific instrumental expressive movements during the 1st, 2nd, and 3rd performances.

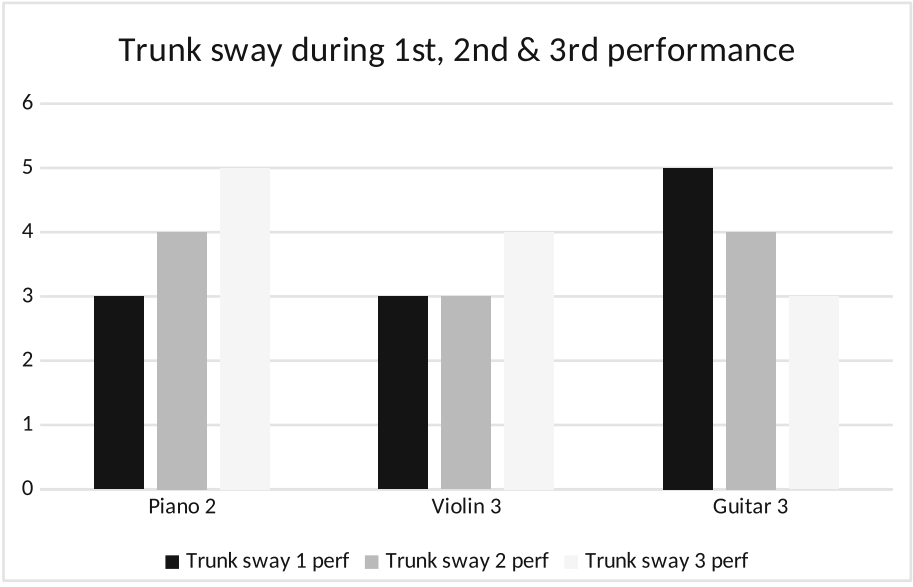

Fig. 2. Trunk sway during the 1st, 2nd, and 3rd performances.

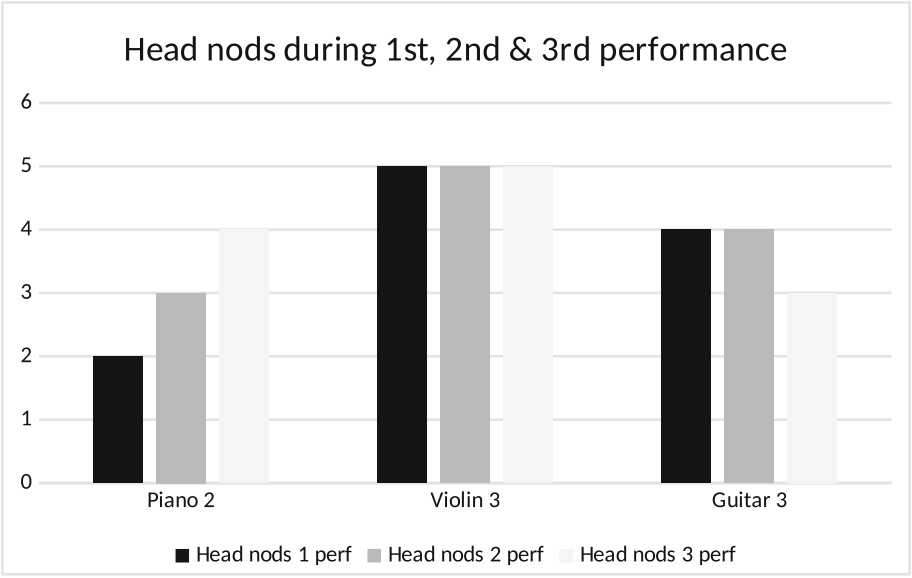

Fig. 3. Head nods during the 1st, 2nd, and 3rd performances.

Piano-2: I love this piece [*smiling, closing her eyes*]. So every time [*looking in space, smiling*] I listen to … this piece or I play this I [*bringing both hands to her heart*] feel… incredibly nice.

Interviewer: Yes, but what about your breath for example [*while she slowly laterally rocked, smiled and looked into space*].

Piano-2: [*closing her eyes, simulating the heart beating on the chest*] oh-oh I have usually when…even-even it's not you know hum …if I play… Ca-lm you know, but usually when you finish the piece [*still smiling, simulating the heart beating in the chest*] I feel you know my heart [*continues simulating the heart beating, smiling*] here beating.

This musician showed reluctance when asked to perform the second task through mental rehearsal, misunderstanding the instructions. She thought she had to concentrate on and remember her movements during the previous performance. This misunderstanding may be caused by her unfamiliarity with the concept of mental rehearsal and her lack of confidence to ask for further explanation. These factors seemed to contribute to her discomfort.

Piano-2: [*whispering*] Ah, ok … [*looking at the interviewer, scratching one hand, then touching her head, shaking her head*] and I can-not imagine my bo-ody, it's difficult, just my hands and see my…

Interviewer: What I am asking you to do is to think about playing the piece mentally, to imagine yourself playing it… then we will speak about that.

Piano-2: ok… yea…yea [*after 5 seconds*] I have done it.

Her nonverbal signals of frequently looking into space and smiling indicated her embarrassment (Keltner 2005). After listening again to the explanation of the task from the interviewer, she executed mental rehearsal and played the piece the second time. Compared to the first performance, the effect of theatrical movements was more evident (see Figs. 1, 2, 3). Piano-2 slightly increased instrumental expressive movement, such as lifting and rotating her forearms and emphasised both swaying and head nodding, making them wider at the same points in the music than the first performance. When asked to verbalise after the second execution, she continued to smile very frequently and manifest discomfort and uncertainty (Keltner 2005), saying that she liked mental rehearsal:

Piano 2: yea,… it's like another performance… it was very nice.

She reported feeling much more relaxed than when playing the first time and, claiming not to remember it, could not make a comparison. Although she declared to be more aware of her body in the second performance, she did not describe any of the movements she performed, as the following extract shows:

Piano-2: now I felt my body engaged, mo-ore than the the first time… I-I realized that the my bodyyy was… There!…. Now I was aware of my body, bu-t… the first … time I don't know what I did.

When asked to execute the third task of playing "in the air" and paying attention to movements, suspending her 'natural attitude', Piano 2 was embarrassed and hesitant:

Piano-2: Oh [*whispering*] It's difficult [*looking at the interviewer, frowning, looking at the piano…shaking her head, smiling, whispering, and looking at the interviewer*] I don't know if I can do that… [*laughing*] I've never done this …. ok [*trying to start, immediately stopping and laughing*] It's strange [*laughing, and positioning her hand again looking at it*].

She started playing "in the air" but stopped when she encountered difficulties with the right hand entering at the fifth bar (see Fig. 1). Then, she continued to simulate playing but stopped again, saying sincerely that she found the task difficult. When she started playing "in the air," her head nodded, she slowly inclined her trunk forward on the first two bars, and then, from the third bar, she started swaying her pelvis side to side. Before starting the third execution, for the first time, Piano-2 displayed a "pre-gesture" moving the forearms widely, seeming to transmit her body's energy to the audience and prepare the initial sound (Lizarazu 2022). Then, like her previous performances, she started swaying at the third bar. Although her swaying was more redundant in this performance since the pelvis was involved, no expressive variations, such as sound dynamics, occurred. However, the discomfort she felt during the interview may have provoked that reaction of increased swaying. During the third verbalisation process, Piano-2 did not describe any movements and confirmed her feelings of embarrassment as revealed by her nonverbal cues. She said she was more tense and very embarrassed in the last performance and that she did not enjoy the task at all.

Piano-2: It's ve-e-ery [*smiling*] dii-ifficult for me to to pla-a-y without the clavier… Aaaa but I I'm trying to think if this is because I didn't have the so-o-und or because I didn't have the clavier… I mean that I tried to ima-agine …how… this could be… ahem …in [*playing in the air*] clavier… but without sound… But [*lightly touching the clavier looking at that*] having notes here I think this could be much easier for me… Ye-ea, but [*playing in the air*] like thi-is I don't have sound I don't have the clavier so…and I am trying now to think how it cou-ld be… If you know [playing in the air] I …had sound without the clavier […] I didn't enjoy that performance… as much as the se-econd one… n-no I didn't like it.

Moreover, although she claimed to feel strange when focusing on movement related to sound and was disconcerted about the lack of physical contact with the instrument and sound during "air playing," her fluency in fingerings improved. This could result from performing the piece the third time and to the effect of "air playing."

3.2 Automatic Repertoire of Expressive Movements

Violin-3 played the first six bars of Adagio- Mozart's Concerto No. 5. Across the three performances and "air playing," he very frequently showed expressive movements typical for his instrument, such as swaying the torso back and forth, head nods, and/or moving the instrument up and down (Davidson 2012; Glowinski et al. 2014). His way of performing was classified as an *automatic repertoire of expressive movements* because his movements appeared unconscious, embedded in his instrumental actions, and seemed part of movement schemes that he unconsciously chose.

Violin-3 preferred to play the piece while sitting down. In each task, he executed the same expressive movements at specific points while showing bowing fluency, often accompanying bow changes with two kinds of head nods. Small head nods were manifested when he started the piece while breathing, and on each upbeat, sometimes also raising his eyebrows, as if these movements assisted him in preparing the beat for a new bar. In doing so, he narrowed his lips. Wider head nods were shown at each new bar, and when the music would have been more intense and forte, such as D sharp at the third and fourth bar. Here, he indicated the climax of the piece by slightly bending upwards, swaying his trunk forward, raising his eyebrows on the C sharp—the third bar—and then narrowing his lips on the E—the fourth bar. In the first verbalisation process, he initially avoided answering by directing attention to how he played rather than focusing on his bodily sensations.

Violin-3: Calm, yea and elegant. I tried to… feel elegant […] there, there is ok after a long day and the first… I realized I was thinking in this moment…I'm tired

When verbalising after the second performance, he reported feeling more implicated in the music while showing the simulated gesture of glissando. The term "simulated gestures" has been chosen to indicate simulating playing from which, similarly to kinesthetic gestures, the musicians received multisensorial feedback while verbalising. These kinds of gestures seemed to assist him in self-reflecting and expressing his feelings to relive the experienced sound quality through sensory-motor perception in his "procedural memory".

Violin-3: Yea I feel more implicated in the performance. I-I-I …now I was in-side the music… I think…. I was more immersed because it wasn't musical the first time… I'm not sure how it sounded but I feel better, the sound was warmer… Warmer more romantic even high glissando [*simulating the glissando*] than the first performance.

He also said he was more conscious of breathing, which was an effect of mental rehearsal. This contributed to developing a sort of kinesthetic thinking in which kinesthesia was fundamental for formalising his thoughts:

Violin-3: for the first note …I-I-I imagined breathing … and I breathed better than the first time… I imagined hm …being conscious [*simulating bowing*] …the resistance of the string with the bow to the harmony of the music … [*touching his temple*] helped me when I played to prepare to fee-eel this kind of hm … this kind of… density …maybe more conscious of playing here [*while simulating holding the bow moving his right elbow up and down*] and here.

When asked to play "in the air," his face did not express tense cues such as narrowing lips or lowering eyebrows. This was the case even though he focused on each technical movement showing more movement fluency, bowing correctly, fingering all the notes, and executing vibrato. In the third verbalisation process, Violin-3 reported perceiving parts of his body better during playing, often expressing his thoughts through "air playing" rather than words. This confirms what was observed during his "playing in the air" and suggests that he became aware of the technical movements. The kinaesthetic and sensory-motor feedback generated while verbalising and "air playing" seemed to assist him in shaping his thoughts and developing body self-awareness.

Violin-3: I didn't feel better in my whole arms, but I felt better in *[simulating the playing position with his left hand and indicating his left wrist*] in my joint … hmhm [l*ooking and moving his right hand on his left elbow*] it was [*simulating vibrato*] here [*looking at the vibrato and touching his left wrist*] for this hand and for this [*still simulating vibrato*] wrist…movement.

The "air playing" seemed to help him re-live the experienced sound quality through sensory-motor perception.

3.3 Exploring Movements

Guitar-3 played the whole piece *Country Dance* from Guitarcosmos 1 by Reginald Smith Brindle. During the interview process, she carefully observed and explored the quality of movements she executed to improve her sound quality, hence the labelling "Exploring movements." It appeared like she explored the kinaesthetic experience produced from the sensory-motor feedback related to the sound. She seemed to economise her movements, removing the automatic elements shown during Performance 1 and 2 while increasing instrumental expressive movement, such as rotating her left elbow (see Figs. 1, 2, 3).

In the first performance, she frequently nodded her head and swayed her right knee and trunk on each melodic half note. On the quarter notes, she slightly and theatrically

swayed her head side to side as if to stress the ascending or descending melody line and communicate her musical involvement. She scarcely performed the instrumental expressive movement of rotating her left elbow. This movement avoids building tension in the arm and assists in executing "flexible and fluid movements" (Bosi 2017, p. 5). After playing, she took a few seconds to reflect on her feelings. When she started speaking, she accompanied her words with iconic gestures (McNeill 2005) to better describe her feeling of stiffness and the solution she found to eliminate it.

> **Guitar-3**: I felt and I am feeling some stiffness [*while moving her right fingers on her palm*] some of them instinctively kick off so I tried [*moving her right wrist and hand completely relaxed*]… to relax them … I tried to control my hand movement [*moving right hand completely relaxed*], when I play I imagine where my hand is going… both hands… I see them… I see the fingerboard, I see the gestures…I think of the sound, I remember its color and I sing… while I am playing, yes all these things.

In the second task, with her eyes closed during mental rehearsal, she slightly swayed her trunk from side to side. She knew this movement since she asked if she could do it before executing mental rehearsal. When she started the second performance, Guitar-3 showed some changes, such as positioning her right hand closer to the guitar hole, producing a different sound than in the first performance, and reducing her knee and trunk swaying until the sixth bar. However, she again started swaying from the seventh bar with the same frequency as the first task. She continued to rotate her elbow and nod with the same frequency. After playing, she said she felt more relaxed when playing the second time and perceived her body better. At this interview stage, she was more aware than the first verbalisation, mainly about her breathing.

> **Guitar-3**: Without the guitar I perceived other things more, my breath… hmmm my breathing while I sang played the piece in my mind, I perceived the sounds of this piece… I felt much more my breathing [*touching her diaphragm area*] when I have the instrument, I perceive I perceive maybe less and… I tried to be very [touching both shoulders] relaxed…
>
> When playing I perceived my body more… more than before, hmm… I combined what I experienced without the guitar this allowed me to feel things that the Fi-irst time I didn't feel….I combined things hmmm some things were so strong…it was so different… it was a completely different sensation… much stronger.

Guitar-3 seemed to explore the movements and their kinesthetic quality related to sound also when verbalising as she simulated the playing:

> **Guitar-3**: I remember the feeling when I embed [*simulating playing with her right thumb*] my finger, the pleasure, the nail [*simulating and singing some notes*]… then I remember the pleasure in embedding my finger [*still simulating*] in the string, then… I felt my breathing much more.

When performing the third task of playing "in the air," looking up at some fixed point, she focused on exploring all the movements she was executing, particularly on

the right hand, pinching the strings and softly lifting her wrist. Then, four seconds later, she closed her eyes, including in the simulation her left-hand fingers, as if she realised she had forgotten them. Her main expressive movement was slightly swaying her trunk side-to-side and back-and-forth on upbeats. She also integrated small head nods into a slight swaying, which seemed to assist in phrasing. In the third performance, she was very focused on the playing and seemed to replicate the expressive movements with the same frequency executed while playing "in the air." She seemed to economise her movements, removing the automatic elements shown during Performances 1 and 2 while increasing instrumental expressive movements such as rotating her left elbow (see Figs. 1, 2, 3). She reduced swaying as if she had realised it was an unnecessary movement while increasing the rotation of her left elbow. This appeared to assist in executing flexible movements and relaxing her left arm and shoulder. She maintained the right hand's position on the guitar hole as in the second performance. In the third verbalisation process, Guitar-3 reported that she had attempted to overlap all her experiences in the three tasks.

> **Guitar-3**: These different sequences of working stages allowed me to bring with me some sensations that, compared to the first time, assisted me in playing…. Hmmm I'm not used to… When I started playing I got distracted because I had to overlap all these experiences, the memory of these experiences… because each of them left me a different memory of myself… the third time I tried to put them all together… hmmm I understood that there are some communicating channels…. But… but …. But sometimes when I play I closed them…I don't perceive everything…These channels should be opened… because they help…

4 Discussion

The findings showed three different attitudes, one for each musician. *Theatralization* was the attitude identified in Piano-2 due to her "theatrical" way of swaying. Davidson (2005) refers to the *centre of moment theory* to explain the role of swaying in pianists claiming that "the pianist's waist region functions as the central physical core for the musical expression" (Davidson 2005, p. 219). This movement stimulates the vestibular activity, arousing pleasure and constituting the top of a hierarchic process in which all the other expressive movements are integrated. In the first performance, swaying might have assisted Piano-2 in keeping time and feeling the pulse better. It also appeared to consolidate into her motor programs as an "implicit memory" in playing that piece. Her swaying increased across the other two performances, perhaps due to the self-reflection on movements. The introspection process, being new to Piano-2, who perhaps lacked introspective competence (Vermersch 2009), may have disturbed her. She had difficulties monitoring her movements because she chose a fast piece unsuitable for the task. Playing "in the air" was new for her; therefore, she had difficulties linking her inner playing with the technical movements needed to execute and monitor. This provoked embarrassment that increased in the third task. She tried to hide through the *theatricalisation* of swaying when playing, which assisted her in removing her attention from concerns about the task. Her embarrassed smiling also increased when verbalising. Piano-2's attitude suggests that her playing was based on the "just-do-it principle" (Montero 2016), with a lack of movement reflection. For this musician, sound-action awareness in music remained at

the status of pre-reflective self-awareness in which her body stayed in a sort of marginal awareness (Toner et al. 2016).

Violin-3's attitude was identified as an *automatic repertoire of expressive movements.* He showed the same expressive movements at specific points in the piece across the three performances. This included head nods and moving up and down the instrument, typical for violinists (Davidson 2012; Glowinski et al. 2014). When guided to self-reflect, he experienced a sort of introspective "journey." For Violin-3, combining these three tasks with the introspection process effectively achieved awareness of instrumental movements and breathing. Particularly, the "air playing" seemed to help him re-live the experienced sound quality through sensory-motor perception without expressing any facial tension. This suggests that the lack of physical contact with the instrument while playing "in the air" made him move more smoothly, appearing to release tension. However, when he played the piece the third time, he again showed the tense cues of narrowing lips and lowering eyebrows, as they are seemingly embedded in his movement repertoire. These movements appeared to be performed unconsciously and were inconsistent with the piece's character. In the verbalisation process, he said he became more aware of the body parts involved in playing. However, he did not mention or change any expressive movements when playing. Lowering and/or raising his eyebrows and narrowing his lips, embedded in his movement repertoire, could cause tension and negatively affect performance. His attitude in executing gestures suggests that this is how he understands and communicates the musical structure. If trained to self-reflect on movement, Violin-3 could develop sound-action awareness related to instrumental movements and become aware of unnecessary and tense cues.

The attitude of Guitar-3 was described as *exploring movements.* While experiencing an "introspective journey" that began in the first task, Guitar-3 gradually shifted from pre-reflective to reflective self-awareness (Petitmengin et al. 2017). This was manifested when she described her motor imagery related to the trajectory of movement that she needed to produce sound in the first verbalisation process. In the second performance, her behaviour suggests she realised the knee and trunk swaying was unnecessary and attempted to eliminate them. However, although she did not have the power to completely remove them, she seemed to explore the movements and their kinesthetic quality related to sound. The exploration of this feeling continued when verbalising. Guitar-3 simulated the playing that generated tactile-kinesthetic feedback (Sheets-Johnstone 2011), merging auditory and motor sensations. This assisted her in going on to develop the process of sound-action awareness. In the third verbalisation process, Guitar-3 reported attempting to overlap all the lived experiences in the three tasks. However, although she tried to organise and provide continuity from the sequential succession of what Godøy (2011, p. 237) calls "sound-action chunks" in her sensory experience, this process was difficult. This could be explained by the fact that there is a basic discontinuity in motor control in the generation and control of action (Godøy 2011, p. 239). Across the three performances, she progressively economised her movements removing the automatic elements, such as swaying her trunk or right knee, while increasing instrumental expressive movement by rotating her left elbow. This avoided creating tension in her arm, helped her movement fluency, and improved her performance. The attitude displayed by Guitar-3 across the three tasks suggests that she explored her "procedural memory" related to gestures,

auditory, and memory of sound, bringing her to develop sound-action awareness in music.

5 Conclusions

Due to the small number of participants, the findings from this research cannot be generalised. However, the method of inquiry allowed exploring how musicians experienced their movement awareness from their "inside" and "outside" (Høffding et al. 2022). The procedures adopted are reliable and may lead to conceptual and theoretical generalisations that may be developed with further research, adopting a "phenomenological mixed method" in which qualitative phenomenological data are combined with quantitative data (Martiny et al. 2021). This study may encourage expert musicians to explore new practice procedures by training them to develop movement and body self-awareness. Mental rehearsal and playing "in the air" while self-reflecting on movement and its kinaesthetic feedback may contribute to achieving what Godøy (2011) calls sound-action awareness in music to positively affect musicians' performance. This process may assist them in becoming aware of their tensions, enabling them to self-correct inappropriate postures.

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