Deliver the meaning – Performance expression in a physical shape

How are physical movements related to the expression in music?

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Content

Introduction

In order to play a piece efficiently, a pianist needs to have a keen grasp of movements. In highly demanding pieces featuring a fast tempo or many jumps, for instance, the pianist has to use effective movements in order to achieve a good performance. According to Palmer, appropriate movements are the transformation of musical structures and units that form the performer's conceptual interpretation.[1] In this research I want to focus on the expression that is conveyed by the movements of the pianist. How are physical movements related to the expression of the music? It is likely that the musical experience is closely linked with experiences of movement. When people listen to music, they very often react by making movements and musicians have to move in order to make music. There is in the context of performing always an idea or meaning to express with movements. To define the meaningful combination of sound and movement, generally, the term *musical gesture* is familiar and covering. Musical gestures are movements to control the instrument, to communicate with others (listeners and other musicians) and to impress an audience.[2] When referring to meaningful movements I will use this term. In order to clarify the purely musical or sounding effect on the resulting expression on the other hand, I will use the term *performance expression* As defined by Palmer. "this term refers to very small variations in dynamics, intensity, pitch, timbre, tempo and other aspects that form the microstructure of the music."[3] According to Palmer, performance expression is often analyzed as a deviation of performed parameters (articulation, timing, tempo) from their regular or fixed values as notated in the score.[4] In order to investigate the influence of physical movements on expression, over the course of this research I have made experiments where I observed the relationship between performance expression and the amount of musical gestures. In my experiments I used excerpts of the following repertoire:

1. A. Scriabin: Sonata-Fantasie op. 19, first movement: Andante
2. E. Granados: from Goyescas op. 11: no. 5, 'El amor y la muerte'
3. L. van Beethoven: Sonata op. 110
4. P. Grainger: Ramble on love, after R. Strauss' Rosenkavalier

In the book "Musical gestures, sound, movement and meaning," by Rolf Inge Godøy and Marc Leman, the use of musical gestures is divided in different categories. These include: *sound-producing gestures*, *sound-accompanying gestures and sound-facilitating gestures. Sound-producing gestures* effectively produce sound. They can be subdivided into movements of excitation and modification. *Sound-accompanying gestures* follow the music and are not involved in the sound production itself. For instance, when trying to achieve a certain touch at the piano, a performer lifts her eyebrows shortly before hitting the key. Finally, in my experiments I

[1] Palmer (1997,128)
[2] Godøy, Leman (2010,1,5)
[3] Palmer(1997,118)
[4] Palmer (1997,118). In the same text, she also points two examples of research where performance expression is not related to the score. But we will not go into this topic further at this point.

focused on *sound-facilitating gestures,* which support sound-producing gestures in many different ways and can be subdivided into phrasing, support and entrained expression. [5] The experiments will feature three different approaches towards the use of musical gestures for very excerpt. Before I expose the structure of my experiments, concerning the aims I want to achieve and methods I will use, I will go a little deeper in the terminology by conveying Truslit's definitions on motion and musical gestures.

Truslit on motion

Perhaps the most interesting publication about motions and gestures in music was made in 1938 by Alexander Truslit. He argued that motions and gestures constitute the most elementary aspect of music: every type of music, according to Truslit, finds its origin in motion. Every human being making music will experience this: we have to move fingers, arms or vocal cords in order to play instruments or sing. The term "motion" is used by many music theorists in various ways, often to refer to the tempo.
However, Truslit believes this definition does not include all aspects of motion a performer experiences. For instance, motion is also linked to flow and relaxation. Additionally, a definition of motion should, according to Truslit, also include the public's experience.
The novelist Jean Paul came to a definition which is similar to Truslit's: "Motion is an invisible dance, just as dance is inaudible music". The motion experience evoked by music is of an inner nature and affects the whole being. Only in the tension of muscles there is an outward manifestation. Sometimes we are not aware of the performer's motions because we are so intensely listening to the music.

Musical motion

Musical motion, according to Truslit, is internal and includes the whole human being. It is both an emotion and the sensation it achieves. It can be linked to an invisible imaginary dance which is free from all physical limits. Musical motion is, Truslit argues, as differentiated and manifold as life itself. Each musical work has its own motion sequence. All the motions have in common that they communicate from one inner being to another. From a scientific perspective musical motion may be counted among the vestibular sensations. When we speak of vestibular sensations we speak of movements of the whole body, not only the limbs. Truslit mentions that in an anatomic and physical sense, our sense of motion is embodied in the vestibular organ which is called the inner ear.
Acoustical elements of motion
Movements usually cause sound. The dynamics and agogics provides information about the movement trajectory. We could say that we could *recognize* movements by the dynamics and agogics and by that we could also say that movement is represented by dynamo-agogics so that any movement can be expressed

[5] Godøy, Leman (2010, 23)

acoustically and musically. When the dynamo-agogic development correspond with a natural movement, it will evoke the impression of this movement in us. When changes in speed are involved, this impression will be at his strongest. However, this is not essential, then when there are not many changes in the speed of movements, the nature will be conveyed by his dynamo-agogics alone.

The acoustic elements of motion and the shaping of sound

Truslit realizes that musical dynamics and agogics are expression of movement processes. Musical shaping is the shaping of movement. Every crescendo and decrescendo, every accelerando and ritardando arises by changing motion energy. Pure movements or expression of emotion are not distinguished here and both arise by motion. It is important that the dynamic development arises as expression, so that the tone sequence assumes a living and true expression. Where time and space are inseparable in real movement, agogics and dynamics are that as well when it comes to musical motion. Neither of them can function alone. The function of agogics is to guide the dynamics. This can only be done when both of them result from the same movement. Dynamics and agogics must be mutually attuned and without any contradiction. The motor processes in music should occur in a natural way, otherwise they don't communicate anything. Natural is a movement only when it obeys the natural laws of movement. By that the dynamic-agogic (temporal dynamic organization) shaping of music can only be applied through the inner execution of the appropriate movement. This arises when the object we focus on is an emotion rather than a pure movement. Truslit's hypothesized that the vestibular organ is important for motion sensations and that it acts as a mediator, registering muscular tensions, which are relevant for the musical production and perception. This hypothesis found not so much evidence at the time.[6]

Body schemata

Body schemata are motor patterns that we have learned and where little or no mental effort is needed, for example grasping a bottle of water. When the action is initiated we grasp the bottle without being aware which muscles we use. All of this is done by our so-called motor programs through which we interact with our environment. We have little access to these motor programs at any given time. They appear automatically without awareness. Trained musicians can play a particular melody by hearth. They do not have to think about how to move their fingers or how to play the melody. The only thing they need to do is to adapt the gesture "out of time" so to speak, in order to set the body schema to work and get the gesture realized in time through the automated motor program. Body image is about the representation or awareness of our body in relation to the environment. This image can be a global non-verbal concept or

[6] Repp (1992, 266, 267, 286) and Schneider (2010, 94,95)

global gesture "out of time". It can, however, also be a global awareness of the gesture "in time". In that sense gestures implies much more than just movement. It implies that movements can be divided into patterns, which can be conceptualized in our mind as single units. In my experiments I used the physical gestures "out of time" by imagining bodily gestures, considered by the chosen approach, explained in the next chapter, and adapting towards the coming passage. This research will convey what happens when we become aware of our physical approach.

Aims and methods

By doing this research I hope to achieve a unity in my performance expression and physical movements by using physical gestures. Further I hope this research will help me having more physical control and freedom during performances and variety in developing new touches at the piano.
To investigate if my own observations concerning performance expression by musical gestures are equal to those of the listeners I will also use my own experience as introspection (self-reflection by observing the videos).

In order to analyze the relationship between musical gesture's and performance expression, I experimented with three different approaches in playing the chosen excerpts:

1. Playing the excerpts naturally, without exaggerating or constraining my movements
2. Reducing the musical gestures to those that are truly necessary for producing the sound
3. Exaggerating the characteristics of the music and playing with a lot of movement

I chose this order of stages in order to observe the differences of musical gestures towards the performance expression. The stage of reducing musical gestures (2) is there to document the movements in their most essential form. The stage of exaggeration (3) is there to increase the performance expression which is related to the amount of bodily gestures. This stage is also there to make performance expression noticeable for not only experienced listeners, but also non-musician listeners. According to Palmer, even listeners without musical experience notice some interpretive aspects. Non-musician listeners are for example able to distinguish general differences among expressive, mechanical (inexpressive), and exaggerated levels of performance as precisely as musician listneres (Kendall & Cartette 1990)[7]

The stage of exaggeration (3) is also there to experiment with bodily gestures I am not used to use. According to Palmer especially expressive timing patterns increase in exaggerated interpretation. [8] This is something that I have also noticed in my experiments with exaggerated movements. In order to document my experimentation, I have made video recordings. In these videos I have used two perspectives in order to see how expression is visible in the different parts of the body:

[7] Palmer (1997, 120)
[8] Palmer (1997, 119)

1. The total image
2. Close up from my arms and hands

I have also observed facial expressions as a way of investigating *sound accompanying gestures* and *sound facilitating gestures*. These observations will be summarized and illustrated in one video towards the end of this exposition. I will however, primarily focus on the two perspectives noted above.
In my experiments I will analyze both the expressive parameters (dynamics/intensity, tempo/timing, articulation/phrasing) as well as different kinds of musical gestures.

Perspective of the listeners

Referring to my aim of finding a more intimate unity between the performance expression and the physical movements, the perspective of the listeners is also important. When listening to music, people may perceive some similar features, but what they perceive is also dependent on their individual background, mood, expertise and particular situation, which focuses their attention on different musical aspects. This dependence between the listeners background and their experience of music is called, *affordance*.[9]

Significant sound features

To investigate how physical movements by musical gestures are related to performance expression, I selected a list of significant sound features that are recognizable for listeners. Even though any noticeable mark in music may arguably be counted as a significant sound feature, I will restrict myself to investigating the following eight:

1. *Onsets:* The opening of a piece
2. *Pulses:* Sonic events in range, regular and irregular that induce us to move
3. *Cyclical pattern:* Groups where gestures are periodic and continue, even when the details of the sounding patterns change
4. *Accents and articulations:* Usually with very clear gestural requirements of energetic motions
5. *Dynamic contours:* Sustained and repeated sounds afford increasing gestures (crescendo) and decreased gestures (decrescendo)
6. *Tessitura contours:* changes in position, spread on the instrument
7. *Modulations:* Fast back and forth motion, or slower motion as in various textural patterns

[9] Godøy, Leman (2010, 103)

8. *Ornaments/textural patterns:* They imply trills, mordents, arpeggio's, double turns etc.[10]

In my research, I have investigated these eight features in several excerpts. I aimed to investigate as many diverse features as possible, in order to make the conclusions more complete. I tried to select musical fragments that are straightforward or extreme in their character, such as ones that for example contain, climaxes, increasing intensity, or the opposite, decreasing intensity. Fragments that contain extremes make it easier to experiment, as I am more quickly expressively involved. I also feel there is more freedom and space for variety in interpretation. I have combined the eight features with musical fragments from my repertoire, which exhibit a more extreme character. The following table contains an overview of these musical fragments of my repertoire, where these eight aspects are integrated:

Significant sound features:	Excerpts:
Accents and articulations	A. Scriabin, from: Sonata-Fantasie op. 19 first movement, Andante, the reprise
Onsets and modulations	P. Grainger "Ramble on love" after Strauss' opera Rosenkavalier
Pulses and cyclical patterns	L. van Beethoven Sonata op. 110, last movement
Dynamic contours, accents and articulations, ornaments/textural patterns and tessitura contours	P. Grainger "Ramble on love" after Strauss' opera Rosenkavalier

In the discussion and for analyzing these excerpts I will concentrate on the following questions:

1. What are the aims of the performance?
2. Which significant signals express the idea? (sound-producing gestures, sound-accompanying gestures, sound-facilitating gestures)
3. Which idea/meaning is there to be expressed?
4. Which idea/meaning has been suggested, focusing on the musical gestures?
5. How are the outward manifestations related to the music?
6. How do the physical movements affect the interpretation?
7. What was my personal experience?

[10] Godøy, Leman (2010, 114, 115)

Presenting different excerpts

In this chapter I will point out the main observations of my own experience during the experiments and the main observations by introspection, considering parameters of performance expression related to the noticeable quantity of bodily gestures, for every example.

Summary of the main observations of performance expression and movements:
In the following examples it is, concerning the performance expression, perceptible that parameters like timing and tempo, phrasing and dynamics increase in their quality during the exaggerated experiments. The increasing tempo and the bodily involvement provides a clear unity of phrases. In the reduced experiments, generally the articulation is often more direct. There is more time for every chord/note and the tempo is slowing down.

Example 1.

In example 1 I played the excerpt of A. Scriabin's Sonata-Fantasie op. 19, first movement, andante, where after the development the theme returns very accentuated and expressive. In my opinion this section belongs to the *accents and articulations* category, as defined by Godoy. This example contains three video fragments where I explore natural, reduced and exaggerated ways of playing. In the text bellow I will briefly summarize my analysis of these fragments and point out the most relevant observations. .

My observations of video 1 (Natural playing):
In video 1 I play in a natural way without a very clear focus and without any additional movements. In this fragment I noticed that I lift my wrist upwards, continually. This observation led me to ask, what is the purpose of lifting the wrist. Is it effective and does it add something to my performance expression? Lifting the wrist could mean that I search for some relaxation after playing the chords. Since, after playing the note, the movement does not add anything to the sound. However, relaxation is also possible without any movement at all. To investigate this aspect, I tried to reduce the movements to those that are truly necessary for playing this section in the next video.
A summary of the main features of performance expression and physical gestures:
Dynamics/Intensity: The dynamics aren't extreme and very close to each other.
Tempo/Timing: The timing of the climax where the theme returns could be more expressive. The tempo after the pause is a bit slow.
Articulation/Phrasing: The phrasing isn't well shaped.
Hands: The hands are moving more or less the same during this session. This provides unclear characters.

My observations of video 2 (Reduced playing):

During this session where I reduced the movements as much as possible, I experienced a connection to every individual chord. I felt the depth of every chord and I felt very much in control. However, I felt also that the unity of the phrases was missing in this session. There wasn't any feeling of continuity and flow. In my mind I was more focused on the individuality of the notes than the totality. The tempo was also slowing down which made the shaping of phrases even more difficult.

A summary of the main features of performance expression and physical gestures:

Dynamics/Intensity: The sound is very strong and intense.

Tempo/Timing: The tempo is quite stable. There is more time connected to every chord and every individual note.

Articulation/Phrasing: Very clearly articulated. There is no direction in the phrase and there is no feeling of unity.

Hands: The hands stay longer in the key. This provides a profound sound.

My observations of video 3 (Exaggerated playing):

During this session I felt a little out of control, especially during the jumps. On the other hand however, I did experience a certain freedom in expression by exaggerating the characters. Hearing the video after the experiment, I found the interpretation much clearer and the phrases more logical in timing. In the pause/transition there was suddenly time to express a different character. I also felt a feeling of flow and continuity in a natural way and the contrasts were stronger.

A summary of the main features of performance expression and physical gestures:

Dynamics/Intensity: The intensity is stronger because the two phrases before and after the pause are much more characterized. There is a larger contrast and therefore a clearer interpretation.

Tempo/Timing: Because the timing is created by the large movements there is a feeling of logical shaping and freedom in timing. There is also an underlying feeling of flow and continuity.

Articulation/Phrasing: There is a clearer unity in the phrases separately and the articulation is much more connected to the imagination of sound.

Hands: In the octave-jumps the hands are moving upwards. The movement towards the second octave has a lot of energy. It creates a good sound and a logical amount of time between the first element and the second element.

Example 2.

In this example I play a piece by Percy Grainger, which is an arrangement of R. Strauss's 'Ramble on love' from the opera 'Rosenkavalier.' The excerpt that I am playing exhibits *Onsets* and *Modulations,* as defined by Godoy. The phrase is slowing down to introduce the main theme. In my experiments with this fragment I explored and compared two ways of playing: reduced (with as little movement as possible) and

exaggerated. The first video contains two fragments that illustrate these two versions. In order to define and observe the differences more clearly I also added two small video's in slow motion.

Observations video 1 (Reduced playing)

During this session I experienced that I focused more on the sound. It was easy to concentrate on the sound. However, I felt I was concentrating on details instead of the musical meaning and larger shapes. The physical distance did not help me to make clear connections between the notes. I felt also very passive.

A summary of the main features of performance expression and physical gestures:

Dynamics/Intensity: The dynamics stay in the same frame during this session. The intensity stays very stable.

Tempo/Timing: The timing of the notes is every time almost exactly the same. There is no variety or the use of accelerando/ritardando. Only in the end, the tempo is slightly slowing down.

Articulation/Phrasing: The phrasing is very static and it is not clear where the phrases are leading to. The articulation has little variety.

Hands: The hands play every individual chord, but don't make a connection to the next chord or note.

Observations video 2 (Exaggerated playing)

During this session I felt much more physical involvement, which felt very good. Hearing the video afterwards I could see much more activity in my body. The amount of *sound-accompanying gestures* was very obvious: In the preparation, before starting the piece, I shortly lifted my eyebrows in order to achieve a warm sound. The last bars before the main theme I opened my posture and looked up.

Also, I noticed that in the beginning there was a certain circularity where the posture of my body is going down during the arpeggio was going upwards. After the arpeggio in the higher register, my posture is going upwards and to the lower register to make a connection to the next chords. In the slow-motion video's this is visible.

A summary of the main features of performance expression and physical gestures:

Dynamics/Intensity: The dynamics are much more varied. The intensity is clearly decreasing towards the main theme.

Tempo/Timing: The tempo is slightly faster compared to the video before (reduced playing). The circulation of the body makes the timing more logical and natural.

Phrasing/Articulation: The timing and dynamics influence the phrasing. There is more 'breathing' between the phrases. Relaxation and tension in the phrases are much clearer. The articulation is more varied and 'prepared' by the amount of *sound-accompanying gestures.*

Hands: The hands are physically shaping a unity, by moving towards the upcoming chords and notes.

Slow motion video's:

The following videos contain fragments from both the reduced- and exaggerated-movement takes in order to illustrate the difference, particularly in the use of circular movements. In the second fragment, we can see that my upper body makes a circle, which is helpful for the feeling of unity and continuity.

Example 3.

In the following example I am playing the ending of the Sonata op. 110 by L. van Beethoven, where the theme of the fugue is combined with an arpeggio pattern in the right hand.[11] In my opinion this fragment belongs to *Pulses* and *Cyclical patterns,* as defined by Godoy. The example contains two video fragments focusing just on the hands. The first fragment shows playing with reduced and the second, with exaggerated movements.

Observations video 1 (reduced playing)

During this session it was very difficult for me to reduce my movements. This section is very intense in character; all the elements of the sonata come together in a feeling of excitement. I tried to use as little movement as possible, but when I watched the video, I noticed I still used my head in expressing the accents. I also felt that by using less activity it was easier to keep an overview of the passage, especially in the beginning.

A summary of the main features of performance expression and physical gestures:

Dynamics/Intensity: There is a certain verticality of movement which creates unchanging dynamics. The supposed increasing intensity towards the end of the piece is not there. Every chord, every note is played in more or less the same intensity.

Tempo/Timing: The tempo is stable. The distant way of playing leaves some space for the timing of every chord, there is no feeling of haste. However, I do not perceive the excitement of the character.

Phrasing/Articulation: The verticality damages the phrasing in this session. The accents are clearly articulated. However, there is no increasing intensity, which makes the phrasing unclear.

Hands: This video showed that the hands are moving effectively and are almost all of the time close to the keys. The arm is in the air less often and seems a bit stiff. The sound is also harsh instead of round.

Observations video 2 (exaggerated playing)

During this session I felt very much that my body was more connected to the character of the music. Watching back the video I noticed that at the end I was carried away by excitement and was moving forward. In my experience while playing, I took time at that passage.

11 The patterns in the right hand refer to the arpeggio's in the first movement of the Sonata.

A summary of the main features of performance expression and physical gestures:
Dynamics/Intensity: The intensity is growing towards the end. The dynamics are more varied, increasing and supported by the use of my back and my head (*sound accompanying gestures*).
Tempo/Timing: The tempo is slightly faster and increasing towards the end. The timing of the accents is well shaped within the context of the phrases. The freedom in the use of my arm made this possible.
Phrasing/Articulation: There is clearly one direction towards the end. The articulation is more direct.
Hands: In the exaggerated video the freedom of the arms makes it easier to accentuate the important chords with the hands. The left hand sometimes makes too large movements for every sixteenth note. This is not always necessary. On the other hand, the feeling of excitement is created by the activity of the body and hands.

Example 4.

The following example contains the middle part of P. Grainger's arrangement of "Ramble on Love" from R. Strauss' opera Die Rosenkavalier. The huge amount of scales, patterns and different dynamics led me to the selection of the features *Dynamic contours, Accents and articulations, Ornaments* and *Tessitura contours,* as defined by Godoy. This piece is quite complex: it is important to separate the main phrases from the transitional ones. I have just began practising this piece and wanted to observe if it is possible to experiment in an early stage of learning the piece. In the example file you can hear fragments of all three approaches mentioned in the chapter "aims and methods". In video 1 I play in a natural way without a very clear focus and without additional movements. In video 2 I play with only the most necessary movements. In video 3, I play with as many diverse movements related to the character of the music.

Observations video 1 (Natural playing)
During this session I was not focusing on my movements but more on the music. I just started with practising this piece recently and therefore the appearance of the video camera made it a little difficult to relax completely.
A summary of the main features of performance expression and physical gestures:
Dynamics/Intensity: The balance of sound in the left and right hand at the beginning of the phrase is not good. The left hand is dominating by the arpeggio's. The crescendo and diminuendo in the scales and patterns can be clearer.
Tempo/Timing: The tempo and timing are quite stable. Sometimes the tempo is slightly slowing down. Especially in technical challenging passages.
Phrasing/Articulation: The phrasing can be clearer.

Observations video 2 (Reduced playing)
During this session I felt extremely unpleasant. In the patterns, I did not feel in control and I felt that the *crescendi* and *decrescendi* didn't came out as I hoped they would. The distant approach of my body towards

the music did not help in overcoming technical challenges. Instead, in my mind I was more aware of technical difficulties.

A summary of the main features of performance expression and physical gestures:
Dynamics/Intensity: The left and the right hand are in balance. There is not a hand that is dominating in sound, as in the previous video.
Tempo/Timing: The tempo is a little bit slower, compared to the previous video. In scales towards the curving point, the slower tempo makes it more difficult to play. The timing of the main phrase is static.
Phrasing/Articulation: There is no connection in the main phrase from one chord to another.
Hands: The hand movements are smaller and more vertical to the instrument. In the fast patterns it is visible that this approach is not effective. The arms do not lead, but rather follow the hands, which makes the development of the phrases difficult.

Observations video 3 (exaggerated playing)
In this session I had the feeling of connection towards the piano. The exaggeration of my physical movements helped me to concentrate on the music and its expressive qualities. The feeling of freedom in my bodily gestures helped me to produce different characters of the music. In difficult passages this "embodiment" helped me stay with the music.
A summary of the main features of performance expression and physical gestures:
Dynamics/Intensity: The dynamics are slightly increasing, compared to the two earlier videos. Especially in the last phrase there is a clear increasing intensity in the structure of the phrase.
Tempo/Timing: The tempo is moving forward and is not to slow.
Phrasing/Articulation: Although this piece has still some technical challenges, concerning the balance, the phrasing of the main voice was much clearer in this video. However, the endings of phrases could be played clearer.
Hands: In this experimental take the hands are moving upwards more often. The hands are spread on the piano to connect the main melody. The hand is moving upwards to connect large distances in the phrases. I find that this 'horizontal' approach, where the arm leads the hand, is more effective.

Facial expression

Though I didn't analyze and mention the facial expression before, this is an important aspect of musical gestures. The whole body is involved during a performance. Facial expression is also there to communicate to other musicians or the audience.[12] It shows the expression of emotions and character of the music and it shows the involvement or distance of the performer. Sometimes the interpretation of the performer's facial expressions by the listener can be very different from the performer's personal

[12] Godøy, Leman (2010, 5)

emotions. A comparison with acting seems to be of relevance here. In an article "die Methode Schenck" the German pianist Georg Friedrich Schenck explains that an actor, who convincingly delivers a character that is very different from his personality, in a way develops a new reality. In that case, the "as if" becomes true.[13] During performances it can be difficult to be emotionally already in the mood and emotion of the piece. In that case 'acting' can be useful to achieve this emotion. In my exaggerated experiments I noticed also that the character of the physical movements helped me to induce the character of the music. Looking sadly helped me to play sadly, even when it didn't felt sincere from the beginning. In the following video, I have made a compilation of takes, which summarise my exploration of the use of facial actions. In this video I play three fragments: a fragment of Percy Graingers "Ramble on love" after Strauss' opera Die Rosenkavalier, E. Granados's "El amor y la muerte" from Goyescas op. 11 and a fragment from the beginning of A. Scriabin's Sonata-Fantasie op. 19. In the following overview I have indicated which facial actions are related to characters in the music.

	P. Grainger	E. Granados	A. Scriabin
Facial actions:	Eyebrows are moving upwards. The face is going down and going up again.	The face is looking neutral and starts to frown towards the climax. The eyebrows are going down, the head is knocking. The amount of facial actions is high.	The face is slowly going down and starts to frown. After the break the eyebrows 'prepare' the beginning of the phrase by shortly going up and down. Before the second theme the head is completely going upwards.
Character of the music:	Sparkling, introducing	Passionate, explosive	Sustained, evoking

Functions of facial actions

In this overview you can observe that the amount of facial actions increases by the growing intensity of the music. The amount of facial actions is higher during passionate and explosive passages, compared to sparkling passages. Music perception and cognition research finds that there is a clear connection between the sound quality and emotions. Movements evoked by emotions lead to the right sound quality. In the next chapter this aspect will be explained.

[13] Frost (2015, 1)

Emotions

During a performance we can distinguish *felt emotions* and *enacted emotions*. *Felt emotions* are those the pianist truly feels before, during and after his performance. *Enacted emotions* we define as those a pianist should feel to integrate them into the music he is playing, and through this, to transmit them into the audience. In that sense musicians are like actors on stage, reciting the emotions, and aiming to feel as if they are experiencing these emotions. We can distinguish two types of *felt emotions:*

- *Process emotions:* The emotions during and about the very process of playing. Some of them are positive like for example flow, the feeling of doing something easily or beautifully and the feeling of relaxation. Others may be negative like the fear or tension of making mistakes during a performance. These emotions have different distributions, depending on the musician and his/her experiences and expertise.
- *Outcome emotions:* The emotions a musician feels about the outcome of his playing during a performance. This can be positive, like the feeling of satisfaction or pleasure. It can also be negative, like the feeling of being ashamed or disgust for making mistakes.

We can distinguish also two types of *enacted emotions:*

- *Meaning oriented emotions*: The emotions a pianist must induce in himself in order to project the emotion of the music. For instance, trying to feel sad in order to play sad music.
- *Movement oriented*: The emotions a pianist must induce in order to achieve a specific expression or manner of movement. For instance, frowning is an expression of anger. When I look angry my eyebrows are going down and anger in music sounds energetic and strong. Therefore, you could say that the emotion and its consequent expression is functional for the quality of sound. Research on the perception of music and cognition has told us that in an emotional process body and mind are strictly intertwined. The feeling may determine or influence the muscular action.[14]

Conclusion

Referring to my main question: "How are physical movements related to the expression in music?" and observing my experiments with various quantities of musical gestures, I can draw the following conclusions:

One of the main observations that I made during this whole process was that the more exaggerated and physically engaged way of playing helped me to induce the character and emotions of the music, instead of fixating on technical difficulties. During passages of complex structures and fast patterns the physical

[14] Poggi (2006, 1045)

involvement made me feel free. Passages where I was afraid of slipping or be out of control, the exaggerated approach helped me to overcome this fear and pressure and be more relaxed. When I made myself physically more open by opening my upper body and lifting my head upwards, I felt it was easier to have an overview of the structure of the piece. I have also noticed that with exaggerated movements, tempo- and timing patterns had more variety and were also more pronounced. The high amount of bodily gestures often increased the tempo and gave rise to more natural timing of phrases and accents. The high amount of physical gestures evoked an emotional and physical involvement in me. Even though my personal feeling was at the beginning of playing very different from the emotion of the piece, the physical involvement helped me to find the mood and character of the piece.

On the other hand, it is also important to mention that there were occasions where the high amount of physical gestures did not have a positive effect. For instance in example 4 as well as example 3 where the excitement at the end of Beethoven's Sonata op. 110 was out of control because of the high amount of physical gestures. Though you could say that it is natural for the feeling of excitement to be a little out of control, for the performance expression this wasn't successful. Especially in the end, the tempo was moving forward and the accents in the right hand were not shaped very well and as a result the end was less powerful. We can conclude from this that certain passages of excitement find more control in the approach of physical distance.

Coming back to my main question: " how are physical movements related to the expression in music?" we can conclude that the physical movements are often parallel to the meaning of the music. The performance expression increases by the exaggeration of physical gestures. In the future I will be more aware when the exaggerated approach is effective and in which passages it is better to use a reduced approach. I investigated that physical gestures determine the performance expression by the increasing or decreasing parameters, such as dynamics, timing and tempo and distinguish one interpretation from another, considering the quantity of physical gestures.

Bibliography

Beghin, Tom. (2007). "Delivery, Delivery, Delivery! Crowning the Rhetorical Process of Haydn's Keyboard Sonatas." In *Haydn and the Performance of Rhetoric,* edited by Tom Beghin and Sander M. Goldberg, 131-171.Chicago: University of Chicago Press

Frost, Heiner. (2015). "Die Methode Schenck" In *Niederrhein Nachrichten,* Vol. 1

Godøy, Rolf Inge/Leman, Marc. 2010. *Musical gestures, sound, movement, and meaning.* Madison Avenue: New York

Palmer, C. 1997. "Music Performance." *Annual Reviews, department of psychology,* Vol. 48: 115-138

Poggi, I. 2006. "Body and mind in the pianist's performance" *9th international conference on music perception and cognition,* Vol. 1044-1051

Repp, B. H. 1992. "Music as motion: a Synopsis of Alexander Truslit's (1938) 'Gestaltung und Bewegung in der Musik'" *Haskins Laboratories Status Report on Speech Research,* Vol. 111/112: 265-278