



THE ROYAL
DANISH
ACADEMY OF MUSIC

FORMING PERFORMING


- an e-book by Søren Rastogi



Preface

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Shorter parts of the text have previously been published in *Kunsterisk Udviklingsvirksomhed – En antologi* (red. Anne Gry Haugland, DKDM 2016) and in the article *Musikeren i spejlkabinettet* (published at www.dkdm.dk in 2017).

In this e-book, you will find two kinds of links. When you click on , you will be directed to a specific place in a video on YouTube. When you click on [Blue Text](#), you will be directed to the relevant section of the book. You have two options as a reader: either to read the book from beginning to end or to follow your own path in the text.

If you want to see the videos in their entirety, you can find links in the [Reference section](#) at the end.

I would like to thank Anne Gry Haugland for invaluable help and sparring at all stages of the process.

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About FormingPerforming

With the FormingPerforming project I've explored the complex processes involved in learning a new piece of music, and I have used my own practice as a research object for the project.

I was lucky to get access to a work of high quality, which had not been recorded before: the Danish composer Paul von Klenau's Piano Concerto from 1943. Probably as the only living Danish pianist I have previously performed piano music by Klenau, primarily his f – minor Sonata. The concerto is from the same period as this sonata, which gave me a good starting point for my work. (See [About Paul von Klenau](#))

So: On the one hand, the work was completely "virgin" and therefore a very suitable material to use for exploring my work processes from "scratch". There was no previous performance history to which I could relate and which could affect my understanding of the piece. I also expected some elements to be of an unfamiliar technical or musical nature, so that I had to find new ways to work with them without taking advantage of previous experiences from other piano works. On the other hand, the work is traditionally written, so that I still could use much of the embedded experience, that I have achieved through my many years of work on the piano.

With the easy access to video and audio documentation, performing artists have gained an eminent tool for self-development. But we have just started scratching the surface of these possibilities. It is common for classical musicians to record concerts as well as to "play through" in the practice room and record it, but I do not know of any examples, where musicians systematically have documented their practice in order to reflect on it.

Thus, I simply chose to record my practice on the piano concerto with a good quality video camera (A "Zoom Q3"). I did not record all of my practice - the resulting workload would be far too big - but smaller parts of it with the duration of 5-10

minutes. Since the goal was not only to document, but also to develop my processes, I watched the videos straight away and wrote down my observations. The idea was initially to initiate a personal process where I could both consciously identify aspects of my practice (how do I actually do?) and improve it (how can I do it better?). (See [About recording yourself](#))

Later, I have had good experiences by showing these videos to others and discussing them, both with colleagues at the Royal Danish Academy of Music and others who work with artistic research. I have also used the recordings in several group lessons with my piano students as a basis for discussing how to practise.

A selection of the videos is available on YouTube. This e-book contains my reflections and realizations from the project and it is filled with specific links to these videos. I expect to record the piano concerto at the label "Dacapo".

A great deal has been written about the various aspects of practising on a musical instrument, and in recent years the area has begun to expand. The literature is primarily divided into two categories:

Scientific research on the subject, typically conducted by musicians in collaboration with psychologists, brain researchers, sports researchers etc. The results here are scientific articles and the content is generally not widely known in the professional music world. Here the practice of musicians is an object of the analysis and understanding of other fields.

Professional musician´ books, articles or websites with ideas, methods and generally good advice on the subject. These are typically experience-based and the way of communication is good in line with the core of the traditional way of learning a musical instrument, which is “the good example”. These materials exist in quite large numbers, but I do not know many musicians and music students who orientate themselves in these examples of “best practice” on a regular basis Perhaps because of insecurity in changing their own practice which has already shown good results.

With the project's starting point in [artistic research](#), I thought it interesting to try out a third approach. By opening up my own practice, it might be possible to create a mediatorial tool, which could not only begin my own reflection but also in a very direct way might inspire others to ask similar questions about their own practice. In this way, the project may also be of interest to other than pianists or professional musicians. Reflecting in a critical manner on your own artistic processes is, after all, crucial to all art forms. (See [About practice](#))

This e-book, which is an important part of the project's presentation, relates both to my videos and to the reflections I have made in the process. It will probably be of immediate interest for other professional musicians and music students. But at the same time, I have taken advantage of the possibility of - in a general way - putting words to the central part of the development of the knowledge base for a classical musician, which the practice constitutes. I have often had the experience, that many people, even within the art environments, are not fully aware of what actually takes place during the many hours in a classical musician's practice room. I have even encountered the view, that the strong restrictions that we have on our artistic expression, because of the stringency of the notes, can lead to a kind of unreflected reproduction of the work, which at best belongs to the past and, at worst, can't be called real art at all. That this is far from the truth, I hope my project may help to show. (See [About Interpretation](#)).

Finally, I have also tried to find examples in more traditional fields of research, which my reflections could be inspired by. I have looked widely into theories of cognition and learning, but instead of continuously referring to many different sources, I have chosen to concentrate on a single researcher, [Marc Jeannerod](#). In the section [About scientific research](#), I justify this choice.

Also, the form of the e-book is a point by itself: The links directly to relevant places in the videos remind us, that while the reflections have a linguistic expression, the practice is not language-based and I think that the two types of human

behavior have to be in dialogue with each other, if you are to gain new insights in this area. At the same time, the many links in the text to my own experiences are both a guide to the reader, but also emphasizing the non-linear nature of the project. The reader can follow different paths in the text, according to her interest - or she can read it from the beginning to the end.

About Artistic Research (Kunsterisk udviklingsvirksomhed)

Previously, research in the field of performing arts has mainly been carried out by researchers from other disciplines who have looked at art as an object of their methodology. This has led to a large number of results in musicology, humanities, social studies, psychology and many other areas, but in the last decades, a field has emerged that explores art as a phenomenon seen from the "inside" - from the artists themselves. This is usually called Artistic Research, and since 2012 the Danish Ministry of Culture has encouraged the national higher cultural education institutions to pursue activities within this field. After a preparatory work, and strongly inspired by the other Nordic countries, this field was called "Kunsterisk Udviklingsvirksomhed"

I was among the first recipients of funding for a project of this nature, and my supervisor / sparring partner was Anne Gry Haugland. The project was [FormingPerforming](#), and this e-book is a central part of the reporting of this project.

As a new field, which was basically defined by open, non-stringent and non-reproducible methods, the way into a project like this was not quite easy for me. I have big interest in natural science, and the many reflective closed circuits and the strong focus on individuality, and even subjectivity, as I could see in other international projects, seemed a little dissuasive. (Recent developments tend to focus on collaboration with students as a basis for new projects, which is very meaningful. However, one still faces the problem of how the acquired knowledge finds a way out of the people involved and into the surrounding artistic community).

Because the subject of my research was fixed - a relatively recent discovery, the Piano Concerto by [Paul von Klenau](#) - it made sense that the core of the project should be myself and my own reflection. But from the outset, I wanted to do a project that would have the potential not only to improve my own

knowledge but to create value for other pianists. And, moreover, I was hoping that a look into an artist's highly subjective journey towards the goal could have broader interest, both for other art professional's skills and for a wider public. (See [About recording yourself](#))

Nevertheless, I have not excluded insights from more traditional research areas, but I have had many considerations about how this can be done in a way that wouldn't interfere with the open diversity of our investigative methods. At the top of my mind, I think the dangers can be: 1) to be closed around our own thought and ideas or 2) to allow other scientific areas to determine the direction and objectives of the studies. (See [About scientific research](#))

About knowledge sharing

We as classical musicians often have the concert or performance as our primary focus and are generally highly focused on results. We are being judged by the performance of the same musical works and within the same genres as thousands of our colleagues and the competition is tough. We perform an activity where the mastery of extremely complex motor skills must be coupled with a very small frame for errors (the musical notation gives us very few degrees of freedom) - in other words, it is really hard just to play the notes only. And to convey those correctly is just the means to an end, which is: Ultimately to achieve a musical performance that moves the audience, that has a high personal integrity, that conveys a varied and mature emotional content, that, briefly said, is deeply artistic. As a music student at a conservatory, our feedback usually consists of our teacher's corrections to our performance, with suggestions for changes on the detail level - or on a more general level - as well as instructions on how to practise particularly complicated places. But maybe we not so skilled at helping the student finding his own way into the musical piece?

Likewise, it is quite surprising that we rarely talk with our colleagues about the actual work process, on which we all have spent far more than the much-debated 10,000 hours, namely our practice. I know how my colleagues play in a concert, but I know very little about how they practise. There is namely another key issue at stake here: As soon as we have come a long way in our artistic career, it becomes important for us to appear as optimal as possible to the outside world. That is why bad reviews are so hard to accept, because we know that they can put a negative value on our professional career, both figuratively and literally. Consequently, even though we have to live with the possibility of playing a bad concert, we are reluctant to talk about the process leading up to the concert (let alone to show it), as it by its very nature contains unfinished results.

This is why students often are nervous for playing at a lesson, even late in their studies. And this is why we are reluctant to show the process to our colleagues where we are making mistakes. In the classical music world, your market value is directly proportional your reputation - so it's a dangerous business! I also think, that for me this phenomenon has had an effect on my own self-perception, so I initially felt unwilling to look into my own practice processes. Many of these processes are experienced as relatively automatic, and as long as they "work", I think that many musicians actually feel it as a relief, not having to look at our own shortcomings every day (See [About recording yourself](#)).

But the question is whether we hold back our possibilities for development in this area? (See [About reaching out for your full potential](#)). I am convinced, that if we begin to share knowledge and experiences about how we actually practise, we can:

Become much better teachers

Learn much more about, how we can improve our own practice

Get a clearer picture of what really happens during the lengthy job of learning a musical work - also for the benefit of professionals in other art forms as well as the audience.


These hopes have been the starting point for my project [FormingPerforming](#). It has actually been very challenging having to look at your own practice from the outside and showing this side of yourself to students and colleagues. But my hope is that I can encourage others to share their experiences as well, and that in the long term we may develop a common language and conceptual framework for this essential part of our praxis, not least for the benefit of future students.


About practice

In order to achieve a very high degree of detail control within the highly restrictive framework that the written musical piece represents, we have to work very thoroughly with the piece, so that it motorically and perceptually becomes embedded in us. Many sub-elements need to be automated and a lot of the musical content has to be repeated many times before we get a sufficient degree of security, speed, sound and musical expression, in short, a sufficient degree of control and mastery of the piece.


Repetition of elements is thus a primary focal point in our practice process. A "prototype" practice process with the lowest level of awareness would therefore be to play the piece of music "as it was concert" over and over until a satisfactory result was achieved. In most cases this is practically impossible, as it typically is difficult to decode the score in the right tempo, but even for someone capable of doing this, it rarely produces good results. The probability of learning mistakes that must be unlearned is big, the security of your control of motor and musical elements is rarely optimal and it is – all in all - a process that tend to become stressed, frustrated, and containing a lack of decisive quality regarding the content of the work.


So, what do we do?

One method is to repeat sections slowly with a great awareness for details and then gradually increase the tempo.  Variations of this method probably represent the backbone of most professional musicians' practice. Some have systemized this and play shorter sections with a metronome, gradually increasing the speed. Of course, this binds the musical flexibility, but on the other hand it is a controlled method of the process that has a basis outside yourself.

Another approach, which is especially used by pianists and other musicians, who have to coordinate many elements, is to practise the individual elements separately.  One hand at a

time, only the melodic line, a solo voice in a fugue, broken chords as combined grip, etc. The purpose is to automate the individual element to such an extent that we do not have to pay much attention to it in the overall performance, as well as learning the various layers of the musical piece in an optimum manner.

A third possibility is to approach the work in an analyzing and experiencing way. You can try to decode structures in the written score - harmonies, rhythms, shapes, or try to listen to recordings to get a sense of the direction in which the target of one's acquisition of the piece should take. One possibility is also to practise mentally, to imagine playing the music.  This makes sense in relation to the term "action representation" (See [About action representation" and motor cognition"](#)) and it is a method that has had good effects for many.

Often, at the beginning of a practice process, there are very specific problems to be solved - most of them through some kind of a trial and error method.  We test different options until we find a solution that works. The greater experience a musician has, the more problems you are probably able to solve before beginning the more elaborate process which aims to embed the musical work in us so that we can play freely and on a highly artistic level at the concert.

Thus, there are a lot of practices in the piano profession about how to achieve better results in the sense, that we have a number of practice methods that have specific purposes: greater security and mastery of the various parameters such as precision, dynamics, timing, sound, etc. Likewise, many professional musicians have developed great discipline about the formal structures of the exercise - when to practise, how much time on which works in which order, how much warming up, what technical exercises, etc.

But an aspect which I haven't had enough awareness about is, how we structure our practice on time, especially within very small time intervals. It has to do with a number of questions

that concern our attention to the actual practice process, as it appears to us here and now:

Awareness. What parameter do I focus on right now?

Purpose. What is the criterion for success / my interim goal right now?


Evaluation. How is the quality of my process?

Meta-reflection. Is my strategy the right one?

And here, a problem arises in relation to this control in micro-time: How conscious are we when we change strategy? Are we always 100% aware of what we do when we repeat a passage for the tenth time? And finally, a matter of great importance: How do the aesthetic choices emerge in the process? (See [About strategy changes](#))

These are the questions that have the leading roles in the [FormingPerforming](#) project.


About recording yourself

As a central part of the [project](#), I continuously recorded shorter practice sessions during my work with [Paul von Klenau](#)'s piano concerto. I made sure that I also recorded the very early stages of the process, such as this clip, which is the first time, that I practise a section in the second movement. 

I then reviewed the videos and wrote down my reflections. A number of the videos were subsequently released on YouTube with my comments superimposed.



I had two hopes by doing this 1: I would try to get a better understanding of what actually happened during my practice sessions and 2: With the reflections that came along, I hoped to improve my practice. Insights from those two steps, I would subsequently convey in a way, so that others could use them for inspiration and discussion.

The example above is typical of an iterative (repetitive) process that often occurs in practice-based studies. It makes sense when the investigating subject is part of the field of study, as is the case with many forms of learning - in my case, of course, it is self-learning. By repeating a process many times, you can take a series of small steps in one direction that subsequently (or simultaneously) can be recognized.

I expected my practice to take place as normal and that the interesting potential for development of the project would be the subsequent reflections. But to my surprise, something unexpected happened: I already realized in the very early stages of my project, that my practice changed when I turned on the camera: I became more sensorically focused, I became more aware of details and I began to feel tired much earlier than usual.  It seemed as if the thoughts and reflections that emerged when I looked at my practice afterwards began to appear, already while I was practising. In other words, when the camera was on, I was much more aware of perceiving myself from the outside - as an evaluating observer - and therefore my

immediate understanding and evaluation of my practice strategies was of a much higher quality than usual. By doing so, I could avoid the tendency to just practise "as I went along", but instead to be much more aware of the goal of my practice here and now, and change strategy exactly when needed.

But here came another surprise. A very interesting phenomenon was that these changes of strategy occur far more often than I had thought and that they are crucial to the quality of my practice. And most importantly, that they are often initiated before I consciously start them. In fact, many of them first came to my awareness in the subsequent review of the videos. (See [About strategy changes](#)).

It is clear that when I break off a sub-process - often in response to some resistance - I subsequently change strategy much faster than I have been able to consider consciously.  (See [About free will](#)). Many of these strategy changes have to do with artistic choices, such as corrections of sound, phrasing and articulation, in order to achieve a stronger communication of the piece. It seems that my motor and sensory systems "interfere" behind my immediate consciousness in order to determine the direction of my practice. (See [About action representation and motor cognition](#)). At the same time, there is often a clear back and forth between conscious planning and unconscious reactions to resistance. 

The commented videos I've put out on YouTube have thus become a catalogue of how I'm actually working in my practice as well as a documentation of what a reflexive method can do to one's own practice. My hope is that the videos, just by their mere presence in combination with this e-book, could encourage other musicians to initiate a similar process. Not only for their own sake, but also so that we can start exchanging experiences and achieve more knowledge about how we and our students can work in order to achieve the best results (See [About knowledge sharing](#))

There is no doubt about that it has been invaluable for me to go through this developmental process so it's quite strange, why it

should take so many years before I seriously began to optimize my practice in a deliberate way. Probably because it's a little uncomfortable to encounter your own mistakes and flaws, and it's much easier just to enter the natural flow, which has emerged over many years of practice and has already produced good results. Our practice can be automated to such an extent that we do not feel when our process changes - we tend to drift along passively.

To be immersed in your practice can be a nice and relaxed feeling- to experience a processual flow that we do not interfere with. We are inside ourselves. However, this condition is not necessarily for the good as my experience with this project shows. When we do not recognize our processes critically and evaluate them continuously or afterwards, we risk falling into habits that are not necessarily optimal. We can deliberately force our attention "outside" our process so we are not just passive bystanders, but become conscious about monitoring ourselves. (See [About \(self\) imitation](#))

This shift in attention was greatly facilitated by the camera, and my experience is to have achieved a much sharper practice process: I am more aware of the direction of my work, I am more aware of aborting strategies if they do not work optimally and I am more aware of the overall connections of my practice. And at the same time, the unconscious [strategy changes](#) occur more frequently and with higher quality.

About being in several places at the same time

A central schism, which appeared very early in my work with the project, was the difference in the experience of paying attention to my intentions and my movements as opposed to paying attention to how the music sounds.

It is a very basic feature of all bodily actions that they can be divided into the motor performance of the action, which in a sense is "within ourselves" and the outcome of the action, which is "outside in the world". And a basic experience is that it is more effective to focus on the goal of the action rather than focusing on the means to the goal.

An obvious example is typing on a computer keyboard. Try writing a sentence while being aware of the movement of each and every finger. It is a slow and not very precise method. Instead, if you focus on which letters to write or which words should appear on the screen - then the process is far more effective. If you are skilled, just thinking about the word will automatically make your fingers perform the motor program that writes it. In fact, you are then already very close to the experience of playing piano at a higher level.

But again: If we focus too much on the "intermediate level", namely our concrete movements, things often become problematic. It's really hard to do anything motorically complicated if you monitor all of your movements and do not focus on the goal of your actions. So, if you have to teach your children to ride a bike, ask them to focus on where they are heading, not on the movements of the pedals or keeping their balance. I am quite certain, that this phenomenon also plays a strong role in expressing and communicating emotions to other people: It is difficult for most people to smile naturally to a photographer (focus on motor skills), but we can't help smiling naturally to our children (focus on the goal).


But when we work on difficult musical pieces, we can't choose not to focus on the motor aspects, because the works are simply too difficult to play. They require a high level of repetition to be embedded fully in us (See [About practice](#)), and we have therefore cultivated a very sharp monitoring of when our motor system functions appropriately in terms of the greatest possible control (See [About muscular tension and movement](#)). The question is whether the great motoric complexity that difficult piano pieces present makes us too focused on phenomena "within ourselves"?



The phenomena that are perceived to be "within" are the aesthetic idea of the musical elements as well as the motoric experience of our movements and the sensation of the contact of the instrument. At the same time, we experience an "outside", which is the auditive experience of the sound. Here is also the possibility of an aesthetic evaluation, namely to put ourselves in the role of an experienced listener.

It is a crucial part of a professional musician's development to be able to experience his performance as "pure" as possible, that is, to perceive what is expressed while playing. It is harder than it sounds and is probably due to a cognitive mechanism that shuts down the sensory consequences of our actions. (See [About tickling yourself](#)) Many good amateur musicians have good motor skills and a strong vision of the music, but the lack of continuous monitoring and evaluation of their own playing usually makes the result mediocre.


An interesting consideration about being "inside" or "outside" is that one's musical competence can be at very different levels when being present in the two different attitudes: experienced listeners can listen to a first-class performance of a musical piece and have correct and qualified opinions as to what to improve - most music students are already able to do this before they begin at the conservatory. But continuous registration - 100% "objectively" - if you yourself are on the right track, is for most people much harder.

I think that a good image is that there are two bodies present when we play: One body that plans and performs the action and one body that evaluates the action aesthetically. The goal is, of course, that the bodies are synchronized and that there is a straight way from our intentions to the sounding result, just like when an experienced computer user just thinks the sentences to make them appear on the screen. That's also a fundamental aspect about the way our motor system work. (See [About action representation and motor cognition](#))

Our challenge is that, in some ways, we need to start each new working process with a musical piece by "writing on a new kind of computer keyboard" and we need to be very skilled at changing our attention when we correct the purely motor aspects, and when we correct the auditory result. It makes things no less complicated that there are different modalities (sensory systems) that can monitor our motor skills. It can be done with both the eyes (the visual system), the inner feeling of our body (the proprioceptive system) and the sense of touch (the tactile system). Here my experience is that the visual system presents a lot of resistance, and I often look away to focus attention on the other sensual modalities.  A greater awareness of these interactions has clearly helped my practice to become more focused.

Of course, if the musical material is still new, it's obviously not possible just to be in the auditory mode sense - in fact, I see in my videos that I often begin by "reading" the notes, i.e. to monitor (with all sensory systems) that I play the right notes at the right time.  But then I've been surprised by how fast I can shift my focus to the goal and once in a while skip intermediate processes completely.  It was definitely a surprise with this project (See [About recording yourself](#)) and from an educational perspective, I think it extremely interesting to gain more knowledge about how we can develop as quickly as possible. (See [About reaching for your full potential](#))

There is probably also a deeper point in that many of my observations of my videos are simultaneously "inside" and "outside". For example, when I correct an aspect that I describe

at the same time as both a changed motor sensation and a changed sound.  Obviously, it reflects that the two perspectives are inseparable, yet it has been surprising for me since our language usage often is either / or, i.e. "Lift your fingers more" or "Try with a lighter sound". Many of my unconscious [strategy changes](#) often have this unifying effect.

About the control paradox

In my [project](#), I gradually became better to open myself up to the [strategy changes](#) that often occur beyond my immediate consciousness. These shifts are not perceived as a conscious management of details, but as the underlying nudging of a natural process. Here the focus is on being in the "listening" body as well: the more I am able to experience the music from the outside, the better I am able to fully assess – on the conscious or unconscious level - the quality and my ability to communicate the musical content in a continuous way. I became better to produce attention shifts that helped me to achieve a result as quickly as possible that could be as convincing and satisfactory as possible. When I succeeded, my rate of learning increased quite dramatically, which in itself is positive. (See [About reaching for your full potential](#))

As classical musicians we are often met by a paradox when learning a musical piece: We have to control all the details to achieve the strongest communication of the piece. But at the same time, we need to let go of the control of details to achieve a strong and overall coherent expression. It's not an uncommon experience: For example, to read a story loud in a convincing manner, we can't focus on each syllable but must focus on meaning, content and feelings. The focus has to be on the goal of our actions.

A related example is this: If we as adults are to learn a new language, first all the elements are being consciously apprehended; We learn the grammar and syntax and gradually build up a vocabulary. Children go about it completely differently, they imitate, try out, play with the language and see what works. As adults, it takes a very long time to reach an "integrated feeling" of a new language, while children probably can't avoid this at all. Consequently, also in this area, it seems to be a better strategy, as children can learn language at a speed that is much above the level of adults. (See [About being at several places at the same time](#))

There is a matter of part and whole at stake here. The previously mentioned central paradox in the acquisition of complex musical works may also be formulated: Control of the whole requires control over the detail, but the understanding of how to perform the details requires understanding of the whole.

By being very aware of where the attention is at a given time - "inside" or "outside" - and being very open to the fact that the management of the overall process often takes place just behind my immediate consciousness, I think that my project has shown some promising ways out of this paradox.

A key realization is that I can, to great effect, very early in the process shift the focus from detail control towards motor or musical elements of an overall character. It could be a free and relaxed feeling in arms and shoulders, an experience of overall phrases, or listening for harmonic progressions. The consequence of shifting perspective at the right time is that I sometimes can skip more detail-oriented stages in the process. (See [About strategy changes](#)).

I have clearly had a tendency to wait too long to introduce an overall perspective - I've probably expected it to emerge by itself. But on the other hand, I have not had enough knowledge of how my practice actually was able to identify this part-whole question.

Occasionally I have had an immediate sense of "loss of control" when I changed strategies towards an overall perspective early in my practice processes. But I think I've started to accept it more easily, as I have a lot of experience now that the detail control is getting even better. This is the paradox again: Freedom presupposes control that requires freedom.

There is probably also a means/ends-axis appearing here. The shift from part to whole often happens when I change the focus from the execution of my action to my aesthetically-based perception of the consequences of my action. (See [About tickling yourself](#))

About strategy changes

As mentioned in the [About practice](#) section, repetition is a central aspect of most musicians' practice. Immediately after reviewing my exercise videos, questions emerged that I had not expected:

When and why do I interrupt myself in order to repeat a passage?


What do I choose to focus on when I repeat?


For this reason, it was apparently interesting to look at the places where my practice processes broke off and took a different direction. It turned out to be a very central element in my reflection, which I chose to call “strategy change” in the videos.


If we start with the first question, the reasons for my strategy changes, they appear often when I

If we begin with the first question, the reasons for my strategy changes typically are, when I

Play a mistake 


Have a motorical feeling that is not optimal 

Experience a sound quality that I'm not satisfied with 



Experience that a process does not move in the right direction 


The above reasons do not exclude each other, on the contrary, several of them usually happen at the same time: "I play wrong notes and I have an unsatisfactory feeling in my arm" or "I'm experiencing an unsatisfactory sound and I have a bad posture"



This has not really surprised me. I have become a lot more surprised at how quickly I often decide to abort a process and

almost in the same movement have decided both what to repeat and how my new focus should be.  Viewed from the outside, it's so fast that it seems likely that the choice often has been taken "for me". (See [About free will](#))

Gradually, I've become better at utilizing these strategy changes and allowing them to arise when I encounter resistance in my practice. Thus, they can be used as a tool to optimize my practice process. It is hard to say whether it is the conscious or unconscious part of the brain that is enhanced - probably it is some form of fine-tuning of both cognitive aspects.

It took some time before the changes started to materialize. Comparing this video  from an early stage, with this video  from a later date, shows that my process has become more focused and my strategy changes have become more conscious.

There is also a change in the methods I'm testing. In an early video, I use mental practice several times as a method.  I later abandon this method, and it is also clearly seen in the early video that the method does not have a particularly big effect on me. I probably do not have enough experience with this type of practice.

A rather significant example of a strategy change that makes a difference are these two videos. The first video is an example of an exercise process that is not optimal.  (Watch until the end). I experience a gradual decline in the quality of my practice, which causes more and more errors, so I have to slow down the pace. But after I turn off the camera, my frustration leads me to try something new - to play the section much faster (in fact faster than it is intended from Klenau) and with more energy in my articulation. Immediately, I experience a big improvement in my proficiency of playing the passage.  It was obviously possible to skip some stages of the process by switching to the right focus at the right time. It is experienced as a "controlled loss of control". (See [About the control paradox](#))

However, there was also an opposite reaction to my success experiences of being open to the many strategy changes. Occasionally, I experienced that I was trying to get further than I was ready for, and that the quality was actually getting worse.




Thus, it is also important to take a step back mentally and evaluate the process from the outside. Becoming aware of exactly when a "saturation point" occurs and we should go on to work on other things is a fairly central competence, also related to the mastery of learning works as quickly as possible without unnecessary detours. (See [About memorizing and playing concerts](#)).

There are two different things happening here:



Strategy interruptions on a detail level. Relates to the detailed control of security, sound, bodily sensations, etc. Unconscious strategy changes are appropriate.

Strategy interruptions on an overall level. Relates to the general structure of the practice, eg. when to move on to a new section. Conscious strategy changes are appropriate.

In addition, the piano concerto by [Paul von Klenau](#) proved to be a very suitable piece of music to work with. The many unfamiliar figurations often provoked resistance,  and therefore the number of strategy changes were probably greater than usual.

About muscular tension and movements

I was already aware that the focus on muscular relaxation is very important to my practice. My experience is that greater relaxation results in greater control. This is also confirmed by results from sports research¹. Therefore, I knew that I was aware of not building up tension during my work on a difficult passage, for instance by pushing the tempo too early. For myself and my students, I am also focused on having "free" movements, that is, continuous rather than jerky movements. My experience is that they are more relaxed and use less energy.

But when I watched the videos, I was surprised to see that when I focused on muscular relaxation and freedom in my arm and shoulders, my musical expression also improved.  I also observed the effect the other way around: When my musical expression was communicated better, I relaxed more in my arms and had freer movements and a better bodily posture. 

It is necessary to have very detailed control of our movements at the beginning of the learning of a passage - we have to monitor that our fingers are in the right place at the right time. But this precision work often results in a fixation in the arm and shoulders.

Here's a fun exercise: Try to aim consciously and slowly at your nose tip and feel the sensation of your arm. Then try to make the movement again, this time quickly. You probably hit the nose tip again, but this time the arm is much more relaxed.

The interesting thing about my above-mentioned experience is that less focus on precision of details leads to more free movements, which opens up for greater access to musical "targeting". This shift in attention obviously means that my motor skills better convey my musical intention - or at least opens up for this to play a bigger role. There is apparently

¹ R.A. Schmidt og C.A. Wrisberg: "Motor learning and performance". Human Kinetics (2008), 10

something that "clicked" cognitively. ([See About "action representation" and "motor cognition"](#))

Being too tense in your muscles is unfortunately a problem that goes beyond the question of the rate of learning a piece. Constant tension can cause major problems in our muscles and joints, and tendonitis and other serious bodily problems are a real problem for many professional musicians.

The solutions are often based on medical knowledge about joints, muscles or nerves, but the question is whether there are also elements related to our cognitive work process? For example, if we do not experience a connection between our musical performance and the sounding acoustic result, the consequence may often be that we focus solely on our movement skills to gain more control over the process. But in addition to the fact that this often does not help to promote our feelings of wholeness, it can also lead to an inappropriate "willfulness" in our motor system that may have all kinds of harmful effects. Here, a solution could have been to train one's competences in releasing control in an appropriate manner. ([See About being in several places at the same time](#))

An anecdote: A few years ago, I taught a group of researchers and students at the Technical University of Denmark in piano. Virtually everyone was very competent in terms of analysis and musicality, but they were very tense in their motor skills and therefore typically also had a very limited and not so beautiful sound. One person surprised, however, by having a sound quality, which was almost at a professional level. I have no doubt that it was due to his approach to playing the piano, which was to improvise completely freely -without sheet music and without stylistic bindings. That means that from the outset he had opened up for the optimal cognitive unity between imagination of the music, the motor action and the aesthetic sensation of the result. And consequently, he had no tension in his muscles at all.


About interpretation

Many non-musicians, and even some music students, have the idea that the learning of a musical piece happens something like this:

First, we decode the notes in an exact way (there is only one option)

Then we encode this in our motor skills. Our body is considered an empty shell which we fill up with the exact understanding of the notation of the musical piece.


Finally, we can choose an interpretation freely and without constraints, which will be both our conscious and personal choice of exactly how to play this piece.

However, as my videos show, many of these choices occur throughout the course of the practice process, already from the first encounter with the piece.  There is a complex interaction between my motor skills, my understanding of the work through the notes, my embedded experience as a musician, and the auditory feedback that, in some kind of intuitive leap, introduces new elements in my performance of the work. In the videos, they often occur in connection with [strategy changes](#).

I actually think that this is an interesting revelation of some kind of "creativity atom": From the outside, it seems that "I get an idea" - but the "I" is not clear here. "The idea comes to me" is probably more adequate. That this does not necessarily lead to spirituality or some other kind of otherworldliness, is in agreement with a lot of recent theories about how our cognition works. It is a basic fact about our motor actions, that the process begins in our brain, before we are conscious about actually "deciding" the action. This is anxiety provoking, as we are accustomed to the illusion that we are always aware – and in control - of all our actions. (See [About free will](#))


Hence, the idea of interpretation as a conscious choice, that I am always free to take, is probably wrong. Our understanding of the work is constantly evolving during our practice process, and the optimal process allows our embedded knowledge and unconscious control to be part of it. Instead of trying to make clear and conscious choices, we must let go of taking charge in order to gain a higher degree of understanding - and thereby a higher degree of control. (See [About the control paradox](#))

About memorizing and playing concerts

Because of my good ability to sight-read music, I have often begun too late to memorize the music in a deliberate way. Instead, I have continuously automated it, so that after a while I will start playing from memory, but without being aware of it. I have then actually already come far in a wholeness-understanding of the piece. But the moment when I then become consciously aware of my automated movements, I suddenly can't remember the music. 

In connection with the intensification of my [process with the camera](#), it became clear that a more effective strategy for me was to memorize smaller sections, already the first time I work with them. It is fundamentally another way of using the mind, and it actually furthers the focus on the final result. This is also reflected in the statements of many pianists that "I can't play the piece properly, if I can't perform it from memory". One thing, however, is to be able to play a piece of music from memory in your practice room, another thing is to be able to do it in a stressful situation. Once we have shaken off the safe environment of the conservatory, where we have the opportunity to play for our teacher or fellow students several times a week, it is a challenge to practice our performance. This can be done effectively by often putting yourself in situations where it becomes important to play the work correctly the first time around. There is a profound difference between these situations, and on being able to "loop" the piece in your practice room until you are satisfied.


The experience with the camera situation has also increased my ability to "hold on" and to force myself continuously to perform sections as if it was a concert. It was not new to me to play a "concert" for myself in the practice room and even record it with a camera. But I have always done this very late in a learning process. What I have become better at during this project is to make a lot of "micro-processes", where I very

quickly after practising a passage can switch to "concert mode" and try out the place with the correct mental setting. 

Because what happens when we get nervous? In addition to the fact that there are a number of physiological things (our hearts beat faster, we get more tense, we get cold hands, etc.), there is also the fundamental thing, that we get an increased level of awareness about ourselves. You can compare it to going to work on the first day at a new workplace: Suddenly you become aware of aspects of yourself- voice, style, radiance, vocabulary - which you have not given any thoughts previously. In most cases, you move on quickly from this, but at the concert we only have one chance of succeeding. Therefore, it is important that this natural, higher degree of self-awareness is not allowed to have a decisive influence on one's performance.

So it makes sense that a continuous focus on introducing your own self-conscious "performance attention" in your practice can help handle this situation. What is important is that the performance situation becomes: 1. recognizable and 2. harmless. A continuous focus on the phenomenon might help promote this. I really believe that there is a potential for many musicians here - for example, I am now able to find a way into the self-monitoring mode, even though I have not set up the camera at all. It helps me build a bridge between my work processes and the concert attitude. And as a bonus, it makes it easier for me to [tickle myself](#).

I have also seen another connection between the coupling between my mental ideas and my bodily awareness:

When I focus on memorizing a passage, the consequence is often, that my bodily posture and overall bodily sensations are worsening. In the practice situation, I therefore have to remind myself to regain a good feeling in my body. 

It has come to my attention that this phenomenon may also lead to a form of negative self-fulfilling prophecy that has often happened to me in concerts:

I'm unsure if I can remember a passage.

I lose my good feeling of my body.

My motor control and with that my muscular memory are impaired.

I'm making mistakes/playing wrong notes

In working with this project, however, I have become aware that cause and effect in this context can go both ways. Therefore, now I have a new way to go if I'm struck by uncertainty during a concert:

I focus on a good feeling in my body.

My muscular control is getting better.

I'm playing fewer mistakes.

I get a greater sense of security.

About tickling yourself

It's impossible to tickle yourself - try! This is probably due to a cognitive phenomenon, called "efference copy" or "corollary discharge". Initially, it covers the fact that, when performing an action, our nervous system sends messages to the senses influenced by it and makes them respond in a different way than usual. For example, this is one of the reasons why we do not experience the world turning when we turn our heads. The phenomenon also applies to the auditory system: Neural activity in the areas responsible for hearing is diminished when a sound occurs because of our own activity, as opposed to when it comes from other sources².


If it were truly impossible to sense the full effect of your own actions, it would be extremely bad news for musicians: then we would only be able to fully comprehend our sound quality or be able to evaluate the aesthetic content of our playing by listening to recordings of ourselves. Fortunately, it's not impossible to listen "clearly" to yourself while playing - it's just quite difficult. Speaking for myself, I have with this project become better at switching my focus to being "listening" instead of just "acting", for example by deliberately closing my eyes or looking away from the music and the piano.

One of the hard steps to take as a performing musician is to be in an aesthetically experiencing mode while performing the music, but on rare occasions we actually succeed in being emotionally moved by our own musical performance (although it is not something we usually talk about much).

When I see myself practising, it is striking how much good phrasing, good sound-control, free movements in the body depend on being able to alternate between being "listening" and "acting". Playing much more with closed eyes, as mentioned

² Marc Jeannerod: *Motor Cognition: What actions tell the self*. Oxford University Press 2006, 19

earlier, facilitates both these aspects. (See [About being in several places at the same time](#)). Visual feedback is not optimal either to "feel" or "listen" because the visual system focuses on the location of fingers, on the outer shape of the movements and on the notes. (In parentheses, however, it may be beneficial to focus visually on elements close to the acoustic tone production, for example, to look at the movements of the dampers inside the piano. It facilitates focus on the end result, namely the hammer's attack on the string and the resulting sound).

The result is often a holistic sensation: I imagine / move / experience as a connected phenomenon, and it is also by this experience that the good and artistically communicating performance presents itself.  If I find it difficult to find this feeling, it is beneficial for me to be aware of both my inner sensation of muscular relaxation and on the aesthetic result - the sound and the phrasing (See [About muscular tension and movements](#)).

It is also a powerful educational tool if the students can learn to be better at directing their attention towards listening. When they focus on "tickling themselves", they often develop much faster than simply repeating motoric practice methods. But it requires a very specific awareness of how to change attention. The good news is that this awareness may certainly be trained, and I hope that my project can help present new directions here. (See [About recording yourself](#)).

Moreover, there is another interesting thing about the cognitive phenomenon that sensations that depend on our own actions have a special status: Presumably the responsibility for this effect is in the (posterior) parietal cortex and if this region has hyperactivity, either due to illness or external electrical stimulation, one will get problems with self-identification or even have out-of-body experiences³. This can be explained by the fact that we no longer experience the consequences of our

³ Marc Jeannerod: *Motor Cognition: What actions tell the self*. Oxford University Press 2006, 83

actions as coming from ourselves. So the very connection between intention, execution and sensation of our actions is obviously central to us.

About (self)-imitation

A central aspect of learning a musical instrument is imitation. Traditionally, it has taken place as the mirroring of the teacher in the student: By his mere example, the teacher shows the student the way into his own developmental process.

Today, there is a more nuanced picture of the teacher's role: The good teacher must also be able to develop students with other types of prerequisites than their own, so a deep understanding of the student's individual composition and competencies in both physical and mental areas play a big role. It also requires a lot of learning tools to support the student with the right feedback at the right time.

But if we are still looking at the "pure" imitation, which, after all, is the phenomenon that has been a part of music education for centuries, there are a number of interesting things going on:

We have areas of systems in our brain, which are activated, both when an action is performed and when it is observed. These "mirror systems" are seen by some researchers as the cognitive basis for our understanding of other people and as one of the basic building blocks for our ability to learn. For example: One may learn a simple motor task just as quickly by observing others perform it as by practising it oneself⁴. Therefore, it's the same neural mechanisms that are at play, and our motor systems are activated with substantial overlap in either case.

Although there is a vigorous scientific discussion of the wider consequences of these neural systems, it is plausible that motor imitation is a fundamental behavior for us. This phenomenon could be the basis for learning, understanding and a general decoding of communication and intentions from others.

In fact, imitation is so crucial that the imitation behavior itself is the most natural for us - notice how you will easily end up

⁴ Marc Jeannerod: *Motor Cognition: What actions tell the self*. Oxford University Press 2006, 118

sitting in the same way as the person you are talking to. We even have inhibitory elements in the brain, so we do not just walk around and imitate per reflex. Pathological cases have been identified where some people lack this inhibition and therefore compulsorily imitate the behavior that they see⁵.

Then, what happens when we start looking at ourselves from the outside like I do with my videos? Why do I clearly experience my practice process improve? Why is it enough just to imagine a "virtual" camera and still get a more focused practising and stronger artistic results?

At least some of the answer is, that I suddenly become part of a "normal" learning situation with myself as both teacher and student. As an experienced teacher, I am trained to think my students' behaviors in different ways and to imagine alternatives that might bring better results. This competence is based on a link of imitation (I imagine how it is to be them) together with intuitive leaps, which is based on an experience of the relationship between performance-action-result (See [About interpretation](#)). The camera gives me a mental focal point, which shifts my attention to the results of my actions and thus enter into the role of being my own teacher. (See [About tickling yourself](#)).

There is a further twist on this, which I discovered while editing the videos for YouTube: During the project, I seem gradually to have developed a "language" or conceptual framework that enables me to understand faster what happens in my practice: At the beginning, my reflections are less concrete and occur more seldom, but the longer I get into the project, I get more - and more accurate - notes when viewing the videos. It seems that I've got a stronger "toolbox" to categorize the different phenomena in my practice processes.


I think that the positive effects of the insights that this self-mirroring behaviour has led to, is an exciting result, which shows a promising way towards gaining more knowledge about

⁵ Marc Jeannerod: *Motor Cognition: What actions tell the self*. Oxford University Press 2006, 165

the interplay between imagination, sensation, imitation and, not least, artistic expression.

About reaching out for your full potential

One of the reasons for starting a [project](#) like this, with its focus on understanding and optimizing our practice processes, was the idea that potentially we can develop much faster than we normally do. As an example, I often feel that I play far better when I, unprepared, demonstrate a segment to my students than if I had begun to "normally" practise the same music.

So once in a while, we are able to skip stages in the process. Likewise, there are individuals who are obviously able to progress very quickly and learn things in an incredibly short time - what we call musical "prodigies". 

There are probably two ways to consider these exceptional cases:

- 1) They are basically constituted in a different way than the rest of us.
- 2) They have the same starting point as the rest of us, but have - either by their own or others' help - been able to remove some learning barriers that we all share.

I find it fruitful to investigate whether or not 2) could be the case. Not only because of my above-mentioned experience, but also because I have often encountered students who suddenly develop very quickly. It is not hard to imagine that if these developmental leaps were the rule instead of the exception, most musicians would be able to go very far.

So maybe one could discover these barriers by setting up a mirror in front of our own practice? I was enthusiastic about it.

Basically, my experience turned out to be, as I mentioned earlier, that I quickly accelerated my learning process, simply by setting up a camera. (See [About recording yourself](#)) Likewise, another effect, which has an important potential for me, is to increase my awareness towards the end result. (See [About tickling yourself](#))

Here it is appropriate to spend a little time on why it is really desirable to speed up the process of learning a musical work. For other art forms - especially those who create new art works - it's almost absurd to imagine that it could be quality parameter in itself to finish quickly.

But as musicians, we have to deal with large amounts of music in order to be able to get a performing or teaching career:

As a performing artist, with the exception of some international stars, you have to be a part of many different projects, as the market is not big enough to play the same works over a long period of time. Typically, you have two to three concerts with the same works, and then you have to learn something new (realistically, you have to work simultaneously on many musical pieces at the same time). Accordingly, the sooner you can learn things, the more different professional constellations you have the opportunity to participate in.

As a teacher, you have to be able to demonstrate part elements of the work you teach. The amount of piano repertoire is absolutely incredible, so if you have to spend a lot of time preparing each lesson, basically you can't have so many students.

Therefore, one should therefore expect, that the musicians who are able to learn quickly, also do well professionally. And this is certainly the case. The problem is that we have an unfortunate tendency to assume that our preconditions for learning are constant - that some individuals are "better" learners I hope this premise has been challenged with this project.

About free will

When my [strategy changes](#) often happen faster than I'm aware of, it's actually a very basic feature of our motor skills. We know that, if we drive a car and have to avoid something at high speed. We react first and only afterwards "discover" what happened. This means that automated movements are far more effective than conscious movements. Yes, in fact, most of the time consciousness ought not to play a decisive role in performing an act simply because it sets in too late.

And even more interesting, it turns out that we, in a certain sense, begin to act *before* we become aware that we make the decision about doing something. The phenomenon is known as a "readiness potential" in connection with motor actions, which predates the decision to move with 345 milliseconds⁶. This means, that our mind often begins the action before our awareness of the action sets in - and this is precisely what I experience. Here, my investigative method explores some general aspects of our cognition: It turns out that it is not unusual for me to subconsciously change my behavior and that this unconscious management makes a lot of sense. The surprising fact is, that I perceive it as out of the normal!

Therefore, the consequence must be that the optimal mastery of targeted motor skills - which is indeed a necessary prerequisite for being a professional pianist - works best when we "let the action happen". In the moment that we try to control it consciously, we lose quality. (See [About the control paradox](#)) But how can this insight be combined with the targeted and repetitive work needed to master all aspects of a piece?

I actually think that the problem is a little different than it appears initially. As my videos show, many of the choices that occur during a practice process are already unconscious. We usually only have primary awareness of "what" and "how" we

⁶ Marc Jeannerod: *Motor Cognition: What actions tell the self*. Oxford University Press 2006, 60

practise, while the detailed management of the processes most of the time happens beyond our immediate attention. And that is basically a good thing (See [About strategy changes](#)).

For many musicians, the problem is rather that these unconscious systems easily take over. Many people know the feeling that we have our consciousness directed towards other places than directly on our practice process. If hard-pressed, some may even admit that they sometimes simultaneously focus their attention on other things than the actual practice, for example a television screen. This is probably due to the experience that our unconscious systems will "get the job done" if we give them enough time. I'm also experiencing this with many conservatory students: the number of hours in a practice room counts far more than the quality of the practice that actually takes place.

But first of all, a constant reduction of our learning time is an important factor in a professional music life (See [About reaching out for your full potential](#)). Secondly, my experience with this project is that we can achieve much more if we have an appropriate "division of labour" between conscious and unconscious processes. My experience is that there is no contradiction between allowing a strategic change to "unfold" unconsciously while being consciously aware of whether the new strategy is appropriate. I have no doubt that a much greater awareness about alternating between "letting things happen" and "doing something active" is central to reaching the highest possible level as a classical musician.

An attention that, at the same time, is both very focused and open for unconscious control, is probably what many associate with a very good performance state. The experience that we "are 100% in the present" but that we "do not interfere with the music" - that we are in "flow". The challenge is, in fact, to find this condition even in our practice room.

About action representation and motor cognition

In [Marc Jeannerod's](#) book "Motor Cognition" from 2006, "action representation" is a very central concept, which I find it very interesting to connect with my reflections on practising. The term covers a hypothesis about motor actions that say, that the same neural mechanism is active whether we imagine an act, perform an act or observe an action. The term is related to the idea of [mirror systems](#), since imitation is a basic element. Action representation, however, has more far-reaching implications, as the term includes a completely basic overlay of three phenomena, normally perceived as separate in relation to a motor action: 1) the mental imagining 2) the muscular performance and 3) the subsequent sensory registration.

If we take the example from the section "[About being several places at the same time](#)", the mental image of writing the word "Klenau" on a computer keyboard, the motor performance of the K-l-e-n-a-u finger movements and the tactile sensation of the keystrokes (including the visual sensation of "Klenau" on screen) all share a common component in the brain. All three phenomena activate a common area, which is called the shared action representation.

This corresponds well with the overall feeling which I previously described (See [About the control paradox](#)). And it also makes sense that by focusing the attention "outside" ourselves, i.e. on the sounding result, we can not only improve the motor performance but also the mental imagination of the music. This cognitive aspect is a very important part of the overall concept of "motor cognition", which is also described by Marc Jeannerod. It makes sense to speak of "motor cognition", as the motor system and the sensation of this also works back on our mental images of actions.

This means, that much of our behavior is not "top-down" starting "at the top" with the conscious thought, but control and intention often arise bottom-up, i.e. from our sensory and

motor systems. We thus have a system in which the embedded pattern in the form of an action representation is the link between motor movements, sensory effects and mental images. This is why we can also use action representations "backwards" to achieve the right patterns of movement by imagining their effects. This is an extremely relevant knowledge for the development of your own and others' artistic skills.

Here is a quote from Motor Cognition, page 171

“(...) there is an observable transition between automatic functioning and conscious monitoring. The conditions for this transition to appear consistently show that action representations are always close to the edge of consciousness”

Action representations simulate the actions they represent and they are always present, regardless of whether the action is actually performed. They may also be activated "from the outside" - from other people - and in fact it is possible, in principle, to learn as much by observing an act as by performing it yourself (See [About \(self\) imitation](#))

To introduce a concept like motor cognition thus emphasizes: 1) the fast and automated manner in which our motor system is working; 2) the view that targeted actions are mostly performed outside of conscious control and that 3) the mirror system works immediately when you observe an action.

So, a process like in [FormingPerforming](#), where I continually observe myself, will by the observation itself create an improvement by working backwards. It is equally plausible that my awareness of [being recorded](#) creates a positive feedback loop between the perception of my expressive sound, my imagination of the music and the motor performance of it. Here it does not make sense to ask what comes first - all aspects are important in order to [reach your full potential](#).

About scientific research

Who knows what?

There are obviously relevant research findings and theories in the fields of neuroscience and psychology which may help us describe the phenomena that emerge when we investigate our practice processes. Our practice is an extremely complex and refined interaction between conscious and automated actions, where the goal is strong communication between people. At the same time, we have probably the most abstract system of mediation of all art forms, namely the musical notation, which is basically built up mathematically with halving and doubling as the formal basis. Therefore, we have the opportunity to draw on a great many types of knowledge if we want to put other perspectives down on our explorations

That is why it has been important for me to clarify:

- When are my own experiences and reflections of myself (and those of my academic environment) sufficient and when can external knowledge contribute with increased insight, which not only may explain the phenomena of our practice but also have the potential to improve it?

I strongly believe that we can gain a lot by orientating ourselves outside our own area, and for that reason during the project [FormingPerforming](#), I have looked extensively into recent research in cognition. However, I have chosen not to link to research results in all the places where this could have been possible.

The reason is, that I fear I might easily fall into what could be called an "explanation trap": In the moment that a theory from a more traditional research area describes parts of a phenomenon that I experience in my artistic practice, it's tempting to classify all of these experiences in relation to the given theory. It is of course also the essence of the traditional scientific method: that we try out a theory in practice, and then afterwards, with help from our experiences refine the

theoretical description. So the temptation to take a metaphorical breath of relief (if I found theories that could describe some of our experiences as artists), I perceived as a real danger to me. As artists, we should basically equate our praxis with other types of human activities, including the different types of scientific research. Otherwise, we risk that our investigations and their potential to change us in a positive direction are hampered by the values and methods of other professionals. That we in a certain way end up seeing ourselves as experiments, which attempt to test a specific theory and thereby at risk of losing sight of what might separate our kind of experiences from other types of experiences. The consequence may be that our view on our own practice is narrowed.

This is primarily an analysis of trends I have observed in myself and my project, but I think it pays off to pay attention to the problem as soon as one is open to involving other areas of knowledge in one's descriptions and conclusions. You can use the "outside" look to spot common elements between artistic areas and other areas, but you should also be aware that this look may not in any way exhaust all which is interesting from an artistic angle.

However, I have chosen to include a single researcher's concepts and framework of understanding in this text: The French researcher in neuroscience, [Marc Jeannerod](#). He brings together many different research fields and has important points that I think fit well with my own considerations during the project. His concept of motor cognition lies within the paradigm of "embodiment", which has gained ground in psychology and cognitive research in recent decades. The paradigm contains the idea that our understanding of the world has significant non-conceptual aspects and that our motor systems play a basic role in the way we think. Within this paradigm, there is space for the embodied way of thinking that we have refined as classical musicians, and therefore I have experienced it as promising to inform myself in this direction.

It has also been a point for me, that I would like to find knowledge that I have not seen related to musical practice

previously. At the same time, it is also practically convenient for specially interested readers to get a grasp of his thoughts, as they can be found in one place, namely, in his book *Motor Cognition* (Oxford University Press 2006)

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About Paul von Klenau

The Danish composer Paul von Klenau (1883-1946) was born in Copenhagen, as a child of a very wealthy family. His mother was born Berggreen and was the descendant of the composer A.P. Berggreen.

Klenau began his education at the Conservatory of Copenhagen, with Otto Malling as his teacher in music theory among others, but travelled in 1902 to Berlin. His plan was to study violin with Joseph Joachim, but Klenau did not pass the entrance examination. But instead, on the basis of his compositions, he was admitted as "master student" with Max Bruch. This was the starting point for a great career as composer and conductor in Germany and Austria, which continued until 1939. However, he kept having a permanent residence in Frederiksberg and stayed in Denmark every summer. Klenau's works, especially his operas, were performed on prominent theatres in Germany and Austria, and were performed by personalities such as Bruno Walter and Wilhelm Furtwängler. He was published on the - then like now - major international publishing company Universal Edition. He became the director of Wiener Konzerthausgesellschaft in 1924, and in Vienna he had contact with both Arnold Schönberg and Alban Berg. The latter became a close friend, as can be seen by their extensive correspondence. In these years, Klenau also developed his own form of twelve-tone technique.

Alongside his career in Germany and Austria, he was active in Danish music life as initiator of the "Danish Philharmonic Society", which in a number of concerts from 1920-26 put prominent modern composers on the programmes. A highlight was a guest concert in 1923, where Arnold Schönberg conducted his own works.

Like all artists in the 1930s in Germany, Klenau had to relate to Nazism. Initially, due to his modern tone language, he was frowned upon by the Nazi system, but at some point, he made a couple of - with modern eyes unfortunate - statements, which

created a form of ceasefire with the regime, so that he could continue working until 1939. (In a magazine article, he wrote among other things, that his composing technique would fit the "National Socialist world" of the future and argued in a letter to an influential Nazi critic, that the twelfth-tone technique was not invented by the Jew Arnold Schönberg). Here we probably have the primary reason why he was ignored in the post-war period and why his works were virtually not performed for 50 years.

But there was no evidence to say that Klenau was a Nazi artist. He answered letters signed by its sender with "Heil Hitler" with a courteous "Sincerely."⁷ The Danish music researcher and critic Jens Brincker writes about Klenau:

"Paul von Klenau's attitude towards the Nazi regime was first and foremost dictated by his situation as a creative artist in Germany and deeply associated with German art and culture. You can easily find both politically naive and opportunistic features in it, which the leading forces in the German government undoubtedly have also done. They were familiar with the kind of inquiries from artists who tried to avoid a "Berufsverbot" in Germany and the occupied countries during the war. Heroism is not necessarily a part of an artistic talent. But, with German eyes, Paul von Klenau was not a Nazi. He was too modern."⁸

(Note: The fact that Nazism is still haunting our part of the world, I experienced on my own during the application procedure for the FormingPerforming project. I was granted the project, but under the clear prerequisite from the assessment committee, that I made my position unequivocally clear towards Klenau's relationship with the Nazism. I thought – and still think - that this question had no relevance to my investigation and that the inquiry was an expression of an

⁷ Michael Fjeldsøe: *Paul von Klenau, Alban Berg og den 'toneartsbestemte' tolvtonemusik i Musik og Forskning vol. 29* udgivet af Københavns Universitet, 2004

⁸ Jens Brincker: Artikel om Paul von Klenau på "Komponistbasen" på Dansk Komponist Forbunds hjemmeside

outdated view of the relationship between Art and Society. But I dutifully wrote the required answer - and it struck my mind whether I was doing the same kind of thing, that Klenau did Germany of the 30'es: To formulate what one's sponsors would most like to hear.)

From 1939, Klenau moved back to Denmark, where he lived until his death in 1946. During this period he wrote a number of works which came to the public's awareness in the 21st century, when a number of surviving scores appeared. They had been in the family's custody until then, but in 2005, the Royal Library of Denmark managed to acquire the collection, which also contained the piano concerto. Even a piano sonata in f-minor was among the newly discovered works, and it has an extensive relationship with the piano concert.

After 1920 Klenau's musical style is of a twelve-tone technical character, i.e. that he - in a deal with himself and the musical piece - binds himself to use the twelve tones of the chromatic scale in a specific order. Although the technique (which was actually invented by Arnold Schönberg) originally was incredibly avant-garde, Klenau's use of the technique became very tradition-seeking over the years. He is largely finding tonal chords and well-known harmonics, and in one way his style is an extreme version of the "humanistic" movement in the twelve-tone music that Alban Berg was responsible for. There is a clear relationship between the two composers, who were also friends privately. In long passages Klenau's music sounds like pure late romantic music both in sound texture and in the progress of the harmonies. He often adds an extra tone to a traditional triad (e.g., a large seventh), so that the twelve-tone method "goes up". It produces a flickering tonal image, which at the same time seems familiar.

His piano concerto is in three movements and dates from 1944. The movements are

1st movement Allegro.

2nd movement Andante.

3rd movement Lebhaft, mit humor.

The playing time is approximately 35 minutes.

The orchestral size is a traditional romantic orchestra, with double wood winds, 4 horns, trumpets, bassoons, tuba and strings.

The work is a large-scale romantic piano concerto with regards to instrumentation and pianistic display. It has piano configurations which resembles in equal parts Rachmaninov and Brahms with the addition of some unfamiliar twists and turns, uniquely sounding like Klenau. There is a very high energy level in the fast movements. On the other hand, there are places of incredible tranquility in between, for example in most of the 2nd movement, and the work is thus expressively balanced, weighing to the dramatically high-tensioned side.

There is no doubt that Klenau's ambition was to write a large-scale work with a clear thematic inner structure and consistency. In this way, the piano concerto is more reminiscent of Brahms than of Rachmaninov, as well as reflecting the historical development of the music in the twentieth-century and the legacy of Schönberg and Berg

About Marc Jeannerod

Marc Jeannerod (1935-2011) was an internationally recognized researcher in cognitive neuroscience and experimental psychology. His research focused on the cognitive and neurophysiological mechanisms that lie behind motor control, motor cognition, emotion and self-awareness.

Marc Jeannerod specialized in medicine and subsequent neurology at the University of Lyon. His further research training was under the guidance of Michel Jouvet, one of the discoverers of REM sleep. Later, he moved to the United States to work at the University of California, Los Angeles and the Massachusetts Institute of Technology, Boston, before returning to Lyon, where he became a professor at the university. He founded and chaired the French Institute of Cognitive Sciences at the National Center for Scientific Research (CNRS) until 2003.

He was a member of the Academy of French Sciences and a member of the French Legion of Honour.

Marc Jeannerod's work in neurophysiology and clinical neuropsychology has contributed to new knowledge in the areas of cognitive motor control and motor cognition. His work has both led to general theory developments as well as better understanding of concrete clinical disorders.

He has been strongly interested in the concept of representation and the idea of "unexecuted actions" in the motor system. This theory of simulations implies that any goal-directed action has a hidden (covert) stage that contains knowledge about the goal of the action, the motoric means for achieving it as well as its consequences. This hidden "action representation" can also be activated if the action is observed by others.