

# INFLUENCE OF STIMULUS-BASED IMAGERY ON THE PROCESS OF IMPROVISING FREELY

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In the following text, I will go through the main theoretical background of my research, introduce the main ideas of my understanding about improvisation, and describe the experiment and its results that I conducted in the framework of my research. I started experimenting with mental practice while I was studying as a classical pianist in a BA program. It was years before free improvisation became my main interest and artistic channel of expression as a performer.

The use of conscious mental imagery seems to be part of several well-known teaching concepts and educational schools. Being a novice bachelor-level student on piano, I read the book *Piano Technique* by Walter Gieseking and Karl Leimer. (Walter Gieseking was known for his notorious memory and number of recitals he could play by heart.) One of the main topics in the book is about “learning and practicing in one’s mind.” The book gives examples and explains how to memorize pieces by reinforcing their presence as dynamic mental images and do so apart from the piano. As I found the concept helpful, I was determined to continue my research on the topic.

Another book that can be considered as the quintessence of the pedagogical principles of Heinrich Neuhaus, *The Art of Piano Playing* puts mental practice and imagery on a pedestal. Furthermore, about a quarter of the book is directly about “how to create a clear artistic vision” of a piece that is being played and acquired. Neuhaus was the teacher of Sviatoslav Richter, Emil Gilels, Radu Lupu, Eliso Virsaladze, Vera Gornostayeva, Anton Ginsburg, and many others. Neuhaus is probably one of the most influential teachers of the Russian piano school, and his musical descendants are still active everywhere on concert stages around the world.

Chuang C. Chang wrote an e-book called *Fundamentals of Piano Practice*. One chapter of the book, “Mental Play,” is merely about the use of imagery in the process of piano practice. It assures and explains why having a clear mental vision and practicing multimodal memorization of a piece is essential. Chang draws parallels between the process of playing

mentally and performing piano pieces on stage. According to him, the mental image should be in parallel with the process of performing a piece.

In addition to piano schools, which emphasize the importance of mental imagery, several well-known musicians have expressed thoughts about the importance of the role of mental practice in their music-making. For example, Marc Andre Hamelin has stated that “often the most fruitful practice” takes place away from the piano. He argues that while not being at the piano, he is mentally free and can play a piece in whatever way he desires without the restrictions of the objective physical world. Miles Davis has said that “play what you hear, not what you know.” This can be interpreted as a hint for playing what is “sounding in one’s mind.” There is anecdotal information about Arthur Rubinstein learning a piano piece on the train while travelling to the city where his concert took place. Dinu Lipatti describes mental imagery as a crucial part of interpretation in his letters. Many more examples could be brought out here.

When to generalise more, what could the well-known phrase, which is so often heard in music instrument lessons—“listen to what you play”—mean? Maybe it refers to the musician actively comparing their inner vision of the piece with the actual musical outcome currently heard? This comparison could be the basis for instrument practice, where the “search for a clearer and exacter expression” deriving from the musicians’ inner vision is constantly pushing the interpreter to find more exact and precise technical (physical) ways of execution.

Could Mozart have been able to write his pieces straight to the score without corrections if he had not had it all clearly sounding in his mind? Or how could Dmitri Shostakovich have written symphonic music straight to the orchestral score (even while others were interacting with each other around him)? There is actually no possibility of finding proof for what is happening in a composer’s mind and what they are personally experiencing, but it would make sense to suppose that “there must have been something mental” which was used as the basis for writing these compositions.

In 1943 Kenneth Craik wrote his book *The Nature of Explanation*, which is considered to be a pioneer in bringing in the term “mental model.” According to Craik, the mind creates a dual copy of the outside world, which can be used for orientating and executing actions in the physical world. According to him, the actions must primarily be processed in the mind, and only then, secondarily, it is possible to bring them into the objective world. He argues that

neurons must create replicas derived from the processes happening in the physical world. This matches well with the contemporary concept of neurobiology that “the form defines the function” of the neural structure.

As a classical pianist, I found the previously mentioned concepts personally helpful, and knowing about several renowned musicians using a similar way of practicing and performing effectively only added support to my interest in delving deeper into the subject. After my main interest changed to improvisation, the approach to the use of conscious mental imagery in the process of practicing and playing piano had to adapt to a new field. In the following paragraphs, I will give an overview of some concepts, which have influenced my view on improvisation in relation to mental imagery.

In his book *The Poetics of Space*, Gaston Bachelard describes his first reactions to stimuli as something pure, unrationalized, unfiltered. According to him, when the first reaction to something emerges from the subconscious mind and crosses the border to consciousness, the very first moments of acknowledging this reaction include something truth-like and completely free. It is still unknown what this is, what has come from the depth of the subconscious mind, this new impulse has not been adapted to habitual thinking, control mechanisms. For me, as an improviser, this “untouched” impulse (or “flame” as Bachelard calls it) is the freest and most unpredictable phenomenon. A person attaching their actions straight to this impulse (or dynamic stream-like flow of impulses) would enable the purest possible free improvisation, in my opinion.

Jelena Issajeva has written an article that can be used as a link between “the first reaction” as the improvisational mental state and mental imagery. Issajeva bases herself on the semiotic ideas of Charles Sanders Peirce. According to Peirce, the basic semiotic process consists of (1) the object, (2) the sign that represents the object, (3) the interpreter, and (4) the interpretation created by the interpreter. Issajeva argues that the mental representation (known as interpretation in Peirce’s semiosis) is a dynamic process of multimodal (multisensory) imagery experienced by the interpreter. If the interpreter encounters a sign, the subconscious mind gives an instant reaction that bursts out as a “pure impulse” (according to Bachelard), and the interpreter experiences it as multimodal imagery (according to Issajeva) while becoming aware of it.

The next phase of the description of my work is about the experiment, which was conducted in Lecce, Italy, on February 2019. The research was to test the hypothesis that “improvising

freely will benefit from the conscious use of mental imagery.” The experiment included two groups of participants (group A and group B). Participants from group A were asked to freely improvise a short piece. Participants from group B were given a stimulus, which was a paper with a noun written on it. Before improvising a short piece, the participants were asked to mentally improvise, based on the given stimulus. Mental improvisation lasted three minutes (the time measured with the glass hour-clock). All improvisations were captured on video.

The recordings were assessed by a group of experts in free improvisation. The total number of the recorded pieces was seventy-eight, and the number of participants in the experiments was thirteen. Experts had to assess the pieces using a scale from one to ten points.

The data estimation of the experts was converted to z-scale. Z-scale enables normalizing the difference between the actual scope of the scale the experts used to be avoided. Use of z-scale enables the relative differences between results to be measured and compared and are not altered by habits by giving higher or lower marks. After the grades were converted to z-scale, the average marks of the groups A and B were compared. Average grades given for the B group were significantly higher than the average grades for A group.

An independent two tailed t-test was conducted to measure whether the difference in grades between the two groups was statistically significant or not. According to the results of the t-test, the difference between the grades given to the two groups by the experts was statistically significant.

	<b>Group A</b>	<b>Group B</b>
<b>Mean</b>	5.15	6.10
<b>Standard Deviation</b>	2.41	2.06
<b>Variance</b>	5.79	4.24
<b>N</b>	150	240

<b>t-value</b>	17.02	
<b>p-value</b>	.002	

t-value shows the signal to noise ration

p-value shows the probability of the difference between groups caused by chance

## References

Bachelard, Gaston 1999. *Ruumipoeetika*. Tallinn: Vagabund

Chang, Chuan C. 2016. *Fundamentals of Piano Practice*. Florida: Booksurge

Issajeva, Jelena 2015. Sign Theory at Work: The Mental Imagery Debate Revisited. – *Sign Systems Studies*. Vol. 43 (4), pp. 584–596.

Iverson, Ethan, 2008. Interview With Marc-Andre Hamelin. – *DO THE M@TH*, <https://ethaniverson.com/interviews/interview-with-marc-andre-hamelin/>, watched 19.04.2017

Neuhaus, Heinrich 1973. *The Art of Piano Playing*. New York: Praeger Publishers.

Saintilan, Nicole 2014. The Use of Imagery During the Performance of Memorized Music. – *Psychomusicology: Music, Mind, and Brain*. Vol. 24 (4), pp. 309–315.