Bulletin of the Transilvania University of Braşov
Series VIII: Performing Arts • Vol. 12 (61) Special Issue – 2019
https://doi.org/10.31926/but.pa.2019.12.61.43

Emotions and Visual Intelligence, resources in the service of Music quality

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Abstract: *Often, the life quality is related to material needs, but the importance of spiritual needs is more and more reconsidered. The people's ability to survive on the planet Earth, even more, the ability to enjoy the present environment resides in combining the material and spiritual categories of needs. Music as art and science is a mean of communicating emotions which are ordered through the corridor of intelligence. Music is a feeling, but the way we manifest it, either interpret or receive it, defines the capacity of human intelligence. In the present research, I proposed to study the following hypothesis: it is assumed that there is a positive correlation between the control of emotions and the visual intelligence of students from the Music study program. The research was carried out on a sample of students from the Faculty of Arts within Ovidius University from Constanta. The working tool was I-S-T 2000 R – Intelligenz – Struktur –Test 2000 R – (Intelligence Structure Test).*

Key-words: *music, emotions, intelligence, neuroscience, visual intelligence, quality of life.*

1. Introduction

I support this hypothesis because, during the practice of every musician, the reading of scores implies knowledge, deciphering, and interpretation of musical semiography. Reading, decrypting the graphic elements results in attention, reasoning and visual memory. We define intelligence as the ability to solve problems and situations of the present by evaluating the past. Psychologist Gardner Howard highlights in his research the concept of multiple types of intelligence. Thus the multitude of types of intelligence is also in service of music. One of them is visual intelligence necessary to the manifestation of every musician.

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2. Concepts

In this study I set out to develop two of the forms of intelligence that support the musical act, both interpretative and creative: emotional and visual intelligence.

Emotions are complex psychic processes which transcend primary affective process "benefit from a high degree of awareness and intellectualization." (Zlate 2009, 208) Resilience or not to the variety of positive or negative emotions built the personality and emotional intelligence type. The concept of the psychology study from 1990, based on John Mayer and Peter Salovay studies designate the human capacity of maintaining in equilibrium the sum of all emotions, so that together with the other component, cognitive intelligence to highlight a person who denotes self-knowledge, control of affections, awareness of reactions and attitude, highlighting the qualities which are necessary for social, personal and professional life. Emotions represent the framework on which musical thinking, conception, interpretation, and reception are structured. The psychic of a musician cannot be other than an always avant-garde architecture, which is highlighted by the spectacular expression of emotions. As in any other form of art, the musician psychic is the space where the emotion is highlighted almost without restriction. In the daily social reality, the man controls this wealth, the emotion, taking into account that securitization of personality is needed to be able to mask these experiences.

Visual intelligence. The second concept used in this work is visual intelligence. It implies an ability to visualize signs and symbols, as well as the ability to represent the information received in images. Visual intelligence involves the space term, defining the people's ability to be oriented in space, to learn using visuals and to build a type of visual memory.

3. Research methodology

3.1. Sample

The group of participants in this research was formed of 17 students from the Faculty of Arts of Ovidius University from Constanta, Music department, students from University education cycles, Bachelor and Master: Bachelor in Music 1st year – 5 students, 2nd year – 3 students, 3rd year – 1 student, Master in Musical Education Art 1st year – 5 students, 2nd year 5 students. I mention the presence of 9 women and 8 men.

3.2. Instruments used for collecting data

The applied test is called I-S-T 2000 R – *Intellligenz - Struktur - Test 2000 R* – (*The intelligence structure test*). It is comprised of two parts in which different stages of intelligence are highlighted: verbal, numerical figurative intelligence and in the B section, it is presented crystallized and fluid intelligence. The students were tested with the emotional stability scale and the figurative knowledge scale from ISTB. We chose the figurative knowledge scale because it is closer to the term of visual intelligence. The reading of scores implies knowledge, deciphering, and interpretation of musical semiography. Graphic elements result in visual attention, reasoning, and memory. All these aspects are quantified by the IST 2000 R questionnaire, B part, on the figurative knowledge scale.

3.3. The research hypothesis

It is presumed that there is a positive correlation between mastery of student's emotions and visual intelligence from the Music study program.

Table 1

Calculation of data normality. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
stab	.110	17	.200*	.947	17	.417
fk3	.206	17	.054	.920	17	.150

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

From the analysis of normality table we observe that the significance threshold exceeds 0.05 at the two variables, which allows us to declare that we have normal distributions.

Table 2

Pearson correlation coefficient analysis

		stab	fk3
stab	Pearson Correlation	1	.489*
	Sig. (2-tailed)		.046
	N	17	17
fk3	Pearson Correlation	.489*	1
	Sig. (2-tailed)	.046	
	N	17	17

*. Correlation is significant at the 0.05 level (2-tailed).

From the analysis of the correlation table results that there is a positive correlation between the two variables at a significance threshold p=0.046 statistically significant, meaning that people who develop strong emotions also have an increased visual intelligence.

4. Data interpretation

As a result in the application of the three questionnaires, we quantified the result which confirmed the hypothesis that there is a positive correlation between the mastery of s emotions and musical thinking of students from the Music program, Faculty of Arts of *Ovidius* University from Constanța. This result confirms the research in literature following the investigations in the neuroscience field which have proved the cerebral basis of emotions as being at the intersection with the ones of cognition.

The American psychologist Howard Gardner has outlined a new theory in the field of cognitive science, developing the theory of multiple intelligences. The musical education which he received during childhood, to be exact the piano lessons, helped him in the ulterior research in the field of psychology, in which he takes his Bachelor's degree and afterward his Ph.D. in developmental psychology at Harvard. In his studies, he demonstrates that people have one, two or more types of intelligence of the eight types identified by him: 1. Linguistic intelligence; 2. Logical-mathematical intelligence; 3. Musical intelligence; 4. Spatial intelligence; 5. Bodily-kinesthetic intelligence; 6. Interpersonal intelligence; 7. Intrapersonal intelligence; 8. Naturalistic intelligence. In addition, there is a final achievement in

psychology in the form of spiritual intelligence, which is explained by the psychologist and theologian Mihalache Sorin in his study *You are What You Live.*

Of the eight ways of approaching an intellect, the musician corresponds to some, but in no doubt, two are in agreement with his profession, which we will emphasize in support of our hypothesis: musical and spatial-visual intelligence.

In his musical career, an artist also expresses himself through **musical intelligence**. It represents the ability of a person who has the willingness to express emotions through sound, vocal or instruments, education of quality and proven aptitudes toward acquiring skills that can lead to performance. People with this type of intelligence listen to music for pleasure, often going for an instrument or interpreting vocally. They perform with ease in this field when they prove surprising speed when playing an instrument or can lead musician or they can compose music.

The psychic mechanism that the artist alchemizes (processes) in his artistic path is emotion, Psychologist Davidson R.B (Davidson, Bagley 2013, 42-43) emphasizes the importance of **emotion** as to being ''central to the important qualities of the human being, that the dominant approach of emotion in human psychology is severely flawed and more importantly that the brain must be central to any study of emotion." Joe Dispenza argues: "Although the middle brain does not occupy more than one-fifth of the total brain volume, it has a significant influence on behavior, the reason why it is also known as the emotional brain." (Dispenza 2012, 134). In a prior stage to neuroscience studies, emotions were considered to exist only in the brain in the limbic system. While exploring the brain in correlation with emotional intelligence Richard J. Davidson started from the premise that superior cortical functions, especially those located in the prefrontal cortex, which is the most advanced phylogenetic, are crucial for emotion'' (Davidson, Begley 2013, 17). It is the research involved in demonstrating that the region of the prefrontal cortex region is explicitly implicated in cognition and emotion. Moreover, he started from the hypothesis that the left prefrontal area supports positive emotions and the aria in the right supports the negative ones. His study initially performed on 38 babies of 10 months old and then on adults confirmed this hypothesis.

In our study, the second element studied is the sense of sight through visual function, which outlines the superior plane of visual intelligence. The musician walks on a path well known by specialists, from the first intension to study up to the moment of catharsis, the creation of a piece or his interpretation. The existence of a score is the one that allows the contact between the composer and the performer in order to materialize the musical ideas. In this perspective, we

are talking about a science of musical signs, musical semiotics. The signs have a symbolic function, being in an exterior dimension, the first language of communication between the two poles of the music act, the composer and the performer, in the content dimension of a meta-language, signifying actually the aspects of the psychology of the composer's personality which they want to be expressed. The meaning of the semiotics of the score is understood by the mechanism of **perception**. The perception is the psychological process that orientates towards sight. Thus, we refer to as "The third and most recent developed brain: the neo cortex" (Dispenza 2008, 149). There are the occipital lobes that house the center of sight. Here in the visual cortex are distinguished six sections, where the information that comes from outside is processed and "allocated to the interpretation of visual characteristics such as light, movement, shape, contour, depth, color" (Dispenza 2008, 163). At this stage, the musical notes present in a score and perceived by the instrumentalist with these six characteristics are taken over and analyzed in the visual cortex and after that, at a subsequent reception to be recognized. After the score has been viewed and studied several times, associative learning is activated, a process facilitated by the Hippocampus, which is another section of the middle brain. With each new experience, a previously learned action is settled, so that "the hippocampus allows us to create a new memory" (Dispenza 2012, 143). One can already speak of repetitive action, that of perceiving musical signs, understanding that "Associative memories allow us to use what we already know to understand or learn what we do not know, in other words, we use what we know to be able to understand the unknown." (Dispenza 2012, 143)

By combining the two activities involved in our hypothesis, the control of emotions and visual intelligence can support the following. In the musical performance activity all the operational-informational psychic mechanism of primary and secondary processing of information are involved: sensations, perceptions, representations, thinking, memory, imagination, then those of stimulating behavior, motivation, affectivity but also those of psychic adjustments such as communication, attention, and will. Perception is that psychic sensory mechanism through which we relate to objects of the exterior world, acquiring a unitary image over them. "In other words, all knowledge goes in the brain through experience - meaning that it reaches us through senses" (Douglas 2009, 43). This form of sensory knowledge facilitates the reading of a score, decrypting musical semiotics. Neuronal mechanics shows us the path of perception, which is also applied in the perception of musical notation and supports the assimilation of a score: stimulation, organization, interpretation, memory, remembrance. Thus, in a

first phase: looking, seeing, perceiving, images of some codes, musical signs. These codes support a structure so that they can be recognized. As repetition is more frequent, neural networks are continually formed, the signs become more and more known, being easier to receive.

5. Conclusions

Emotional stability is what supports this neural relationship between emotions and visual perception. "*Emotional intelli*gence: the capacity of being able to be motivated and persevere in the face of frustration; to control one's impulses and delay their satisfaction; to adjust one's moods and to prevent their troubles from darkening their thinking; to persevere and to hope" (Goleman 2008, 62). The area of the brain in which the negative emotions are processed, the amygdala "is a structure of the middle brain which is responsible for alerting the body to life-threatening situations and also being the place where the four primitive emotions of high intensity are located: aggression, joy, sadness and fear" (Dispenza 2012, 144). When these negative emotions appear in the manifestations of a musician they alter the emotional stability, so that the correlation between emotion and visual perception would not be at a competitive level. The artistic performance would not be as expected.

In conclusion, I can affirm the confirmation of our hypothesis. I consider that between the two variables, emotional intelligence and visual perception is a relevant link in which one enhances the other. It is possible that a musical text may inspire the performer or a certain emotion may trigger the composition of inspired work. The constant attitude of visual training by reading the musical scores, accommodating the instrumentalist with the extended version of the musical notation leads to greater emotional resilience. Art, music are ways through which emotional stability can become constant and one can attain emotional intelligence. The brain supports this attitude through its structure, also having safeguard mechanism:" Regarding the brain, we can speculate: the limbic circuit may send alarm signals in response to the possible detection of some bad events, but the prefrontal cortex and the surrounding areas have learned meanwhile a new and healthier reaction. In conclusion, emotional lessons – even the most ingrained habits of childhood can be reshaped. Emotional learning is a lifelong process that can last a lifetime" (Goleman 2008, 275).

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