

# The Psycho-Neurologic Implications in Musical Phenomenon: Music and Personal Development

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## Abstract

Contemporary society shows a growing preoccupation in identifying certain techniques which facilitate personal development, with strategies that work swiftly and effectively. The search for identity, for the *Self*, is in fact the search for the purpose of life. What best matches one's real identity should be the equivalent of identifying one's vocation and the intrinsic destiny for which an individual is efficiently structured. Self-knowledge is the antechamber of all answers and the axis that places us in the environment in which we can accomplish our best performances. The goal of this article is to bring together two theories, stemming from opposing historical boundaries, the *catharsis* and the *self-management*, in order to support the onset of a concept that would justify the necessity of integrating art into people's lives as an essential part of self-development processes. The arguments supporting this new idea are gathered from the contributions of neurosciences, cognitive motivational literature and musicological studies.

## Keywords

Music, Management, Communication, Language, Methodologies, Cognition, Music Therapy

## 1. Introduction

Music education is an essential part of any person development, teaches us to think and act differently, enhances minds, and makes us realize the important values of life. People who study and learn music, develop many different abilities and, at the same time, connect with others and share emotions. The music of our days reflects the culture and the value of our societies. Prospects and life goals are different for each of us, shifting from independence and curiosity to wisdom, acceptance and integration. The way in which the individual seeks meaning in

life is determined by a wide range of motivations.

Actions of communication through art existed since prehistoric times. Communication is a dynamic, transformational phenomenon, and is currently present in all relations between people and institutions (Drucker, 1999; Maslow, 2007; Hallam, 2012).

From the perspective of informational theory, communication is a process of sending a message (verbal, written text, symbolic gesture, sounds) from one source to another, using a certain language (code) and a channel. Roman Jakobson<sup>1</sup> divided communication into six constitutive parameters to which he assigned distinct functions: transmitter, receiver, message, context, code, contact. To them were added a number of beautiful expressions, which enriches the whole perspective of communication process, bringing it closer to art, such as: sending *sensibility and poetic expression*. The German sociologist Michael Kunczik offers a more complex profile of the communication concept, dividing it into three subcategories<sup>2</sup>:

1) The first definition is unidirectional, the message is issued by an individual X (performer) trying to communicate with an individual Y (audience), irrespective if the second receives, decodes or reacts to the expected level. Kunczik considers that for the individual X the communication process is realized completely, even if one cannot speak about reciprocity.

2) Intrapersonal communication in which an individual (X or Y) interacts with himself, from the superior psychic level up to unconscious neuro-vegetative reactions.

3) The third definition is in fact a characterization of interpersonal communication, in which the message to be sent is placed in the foreground, the individual X being conditioned by the reaction of individual Y.

According to this description, without a correct feedback from the receiver the communication process cannot be completed.

Music is a phenomenon that enables performers to interfere with the quality of emotions, to use a certain composition to express personal experiences and to communicate extra information.

At the beginning of the cultivation the singing art, music played an important role in religious life. Keeping the allure of exclusive art, music moved for a consistent number of centuries to the royal castles, then it expanded in the performance halls forming operas, philharmonic orchestras, concert halls etc. From 1581, when took place the first ballet performance at the court of King Henry III, to the present day, stage performances went through several stages of development, from small ensembles to the current ensembles that exceed two hundred people on stage. The conformation of the vocal-instrumental groups was also changed along history following the style diversity, in other words have seconded the needs communicated by composers through their scores. It is possible that

<sup>1</sup>1896-1982, Russian-Born American Linguist, Pioneer of the Structural Analysis of Language.

<sup>2</sup>Kunczik & Zipfel (1988). *Introducere în știința publicisticii și a comunicării*. Editura Presa Universitară Clujeană, Cluj-Napoca, p. 14.

the idea of music teacher emerged in the same primitive era in which instrumentalists learned to play from one another; it is known for a fact that the practice of music in churches made necessary that someone more experienced provide learning models for liturgical hymns; in Baroque and Classicism can be identified a consistent practice of the private lessons, the great composers forming disciples in their homes (Chailles, 1967; Goodal, 2007).

Going back to communication theories, we will focus on the *metacommunication* axiom developed by Watzlawich<sup>3</sup> that we accept as valid for our present study. According to his assertions, any observer should exclude the possibility of “non-communication” as each manifestation of a phenomenon, human or physical—such as verbalization, gestures, paralinguistic messages, *music*—are valid information.

## 2. Art and Catharsis

The principles of integrating the concept of *catharsis* in self-management developments focuses on the therapeutic effect that music can have on people life. Beside the increasing evidences of literature (Rusu, 2017a; Levitin, 2007; Koelsch, 2018), some studies have highlighted the importance of art in keeping active the human brain, making people smarter, happier and healthier, improving the physical state, cognitive skills and emotional perceptions (Jensen, 2010; Leonard 2008; Gavreliuc, 2011). The results of studies demonstrate that music boost brain plasticity, stimulate the empathy and help individuals to connect socially and intellectually.

Aristotle wrote in his “Poetics” fragments about *catharsis*<sup>4</sup>, the Greek word signifying the clearing and cleaning of the soul and mind, that surpass accessible spirituality, explaining the miraculous effect that exposure to artistic factors can have on a human being: “catharsis refers to the purification and purgation of emotions—especially pity and fear—through art or to any extreme change in emotion that results in renewal and restoration”<sup>5</sup>.

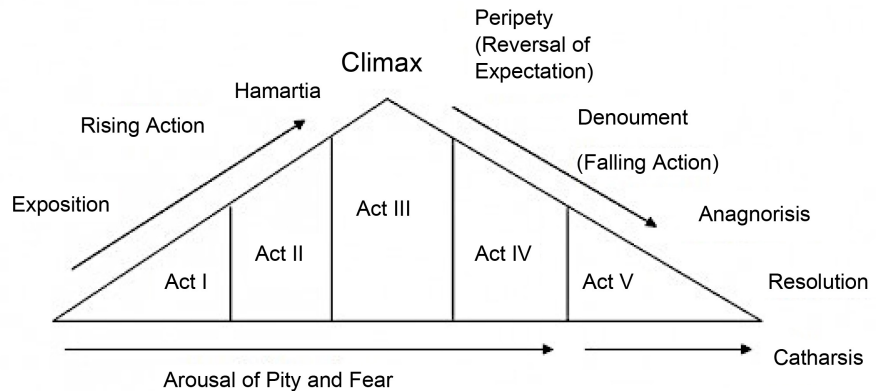
The Greek philosopher invested the power of art with purifying functions, and declared it the most available resource for inducing a state of calmness that can be accessed without effort. More precisely, Aristotle claimed there are two components of drama—fear and pity—which, together with another fundamental concept, *mimesis* (the imitation of reality), generate powerful emotional states that attract the audience and determine them to get involved in the artistic act by means of affective filtering, and thus to purify themselves through art.

Aristotle’s cathartic system (Figure 1) analyzes the emotional response to artistic stimulation, more precisely demonstrating what effects have tragedy on human purification. His “poetic-divine” theory generated through performing dramas is based on a five-stage spatio-temporal matrix by which the individuals can free themselves from anxious feelings, restoring the soul balance: introduction

<sup>3</sup>*Idem*, p. 12.

<sup>4</sup>Aristotel (2010). *Poetica*. Editura Universul Enciclopedic Gold, București, pp. 51-68.

<sup>5</sup>Mimidex Free Online Dictionary. <http://www.memidex.com/purgation+catharsis>



**Figure 1.** Aristotle-Cathartic system<sup>6</sup>.

(exposition), complication (rising action), climax, consequence (falling action) and resolution.

Ancient Greece absorbed, into Homeric poetry, the cathartic soul-cleaning effect of art, through actions which seemed rather to serve religious rituals, overlapping what we nowadays call “the mystery of confession”. The later medical and psychoanalytic context continued working with this derived connotation of catharsis, explaining it as a state of exuberance with divine origins, associated with the elimination of powerful emotions by specific means. Sigmund Freud, together with his colleague Josef Breuer introduced the notion into the therapy of hysteria, applying the cathartic effect during hypnosis episodes. Although the meaning of the Freudian theory was far from the ancient concept, it also referred to the unconscious elements of the human psyche, which react to certain stimuli that we often do not understand: “before the 80s there existed almost no neurological study on music (...) nowadays there is an enormous and increasingly varied number of works on the neural basis of perception and representation of music and on the complex and often bizarre disorders that it may be subject to.”

The phenomenon of catharsis may be the explanation of the impact that external factors have on human psychological rebalancing. Exposure to music is often hard to explain scientifically, but the relationships that are created on the subconscious level can be identified in each person’s state of mind: in changes of attitude before and after concerts, in detachment from daily concerns and diminishing the stress produced by everyday life—a genuine “purification of the spirit” which we attain by intense participation in the artistic act (Sacks, 2017; Chailles, 1967).

### 3. The Concept of Self-Management

Self-management, one of the most widely spread 21<sup>st</sup> century trends, which we come across in the literature under related names such as *self-help*, *leadership*, and *personal development*, brings up motivational elements with the role of

<sup>6</sup>Source of Diagram: Aristotel Theory of Drama in Poetics.

<https://owlcation.com/humanities/Aristotle-Theory-Drama-poetics>

constructing and consolidating certain personality traits, able to generate success (Barreto, Ryan, & Schmitt, 2009).

Self-management is in fact a combination of behaviors that leaders cultivate, a recipe of “appropriate conduct” meant for certain situations<sup>7</sup>, which they learn and make use of in the right circumstances in order to become strong in the relationship to themselves. Contemporary motivational literature is full of examples and indicators of the ideal self-management variant, and the great majority highlight the same points (Rothstein & Burke, 2010; Buckingham, 2007; Drucker, 1999; Maslow, 2007; Grof, 1976):

- Permanent self-control and equilibrium in order to be able to act clearly, very realistically and be well organized and in any situation;
- Planning details in order to establish “implementation steps” based on gradual strategies in the short, medium, and long term;
- Concern to identify all the solutions that may positivize vulnerable spots and the levers of opportunity that support action plans;
- Energetic and proactive attitude made to create and support maximal efficiency by means of positive habits.

The variables that influence the self-management processes are defined by individual characteristics such as personal motivation to develop, cognitive capacity, aspiration, acquiring knowledge, learning to use that knowledge effectively, and discovering why one is driven to use one’s knowledge and competencies<sup>8</sup>.

#### 4. Music and Neurological Dimensions

Our brain has a fantastic absorption capacity and the optimal time to consciously educate musical preferences is that of adolescence, when the speed of brain connections is in its maximum use. It is desirable at this stage to distribute as many and diverse musical materials as possible to build and develop neural “networks” of future listeners (Levitin, 2010; Eisner, 1987).

As people age, the neural circuits tend to lose their flexibility, which means that it becomes increasingly difficult to accept and incorporate major pieces of information such as music or language systems. Post-maturity involves simplifying the synapses and the elimination of unnecessary neural ties so that a person who had no contact with music until the age of 20, in neurological terms cannot develop the same level of understanding and appreciation as one who was educated intensely, consistently and from an early age. In general, between eight to fourteen years of age begins the removal of what is superfluous in the frontal lobes, the seat of higher thought, reason, planning and impulse control. During this period, myelination begins to accelerate. Myelin is a fatty substance which covers the axons, speeding synaptic transmission. Myelination of the entire brain generally ends around age 20 (Welker & Platon, 2012).

Musical communication is often infra-verbal, directly oriented to the listener,

<sup>7</sup>Rothstein & Burke (2010). *Self-Management and Leadership Development*. Edward Elgar Publishing House, p. 112.

<sup>8</sup>*Idem*, p. 63.

who must understand the message, relive and recognize the musical language elaborated by the composer.

Listening to music involves several neurological, physiological and psychological processes, which, understood as such, may improve the attributes of communication by anticipating the needs of the listener (Sacks, 2017: p. 32):

- Sensory reactions to the acoustic impact, which are fixed in the cortical area;
- Reception of sounds in the temporal lobes;
- Perception of musical language in the right cerebral hemisphere (in a point symmetrical with that of the speech centres on the left side) by analysing, structuring and becoming aware of the technical and emotional aspects to which react the senses of the listener.

Therefore, we notice that in musical perception there are at least two types of messages, some that can be decoded, embedded in musical notation, and other less obvious, related to the psychological impact (Goodall, 2015; Eisner, 1987).

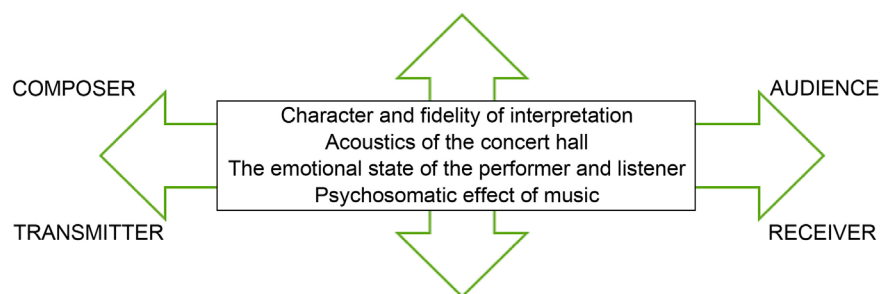
The opposite poles of musical communication are the composer and the audience (Figure 2). Conjunctural peculiarities related to musical notation, the quality of interpretation, including the location of a performance and the emotional state of the listener are the instruments through which the message is transmitted between the two poles (Chailles, 1967; Goodall, 2015).

Music communication, defined in a general sense, requires an exchange of information between two or more systems, through which the receiver decodes the message sent by the transmitter.

The theories built by the science of communication are focused on the factors involved in the transfer processes, in order to identify operational methods which can offer the message optimal conditions for circulation (Kunczik & Astrid, 1988).

Musical communication is very close to the “psychological communication” model. From this perspective, the overall activity in the system is in fact a network in which the distribution and reception pillars are interdependent, both from an interspecific (the relation with the audience) and intraspecific view (within musical subsystems).

If we were to explain the quality of the musical message, we may say without reservation that the most consistent attribute in communicating with the audience is to generate and maintain emotions (Leonard, 2008; Grof, 1976). This is



**Figure 2.** Communication channel—decoding music.

one of the reasons why music, in order to complement or intensify certain reactions from consumers, is extensively exploited by film producers and in advertising.

Emotion is in fact the primary reaction, spontaneous, which we have following the exposure to a stimulus, in this case to music (Rusu, 2017a; Levitin, 2010). Although the phenomenon is almost instinctive, it gives rise to an extremely varied and differentiated range of emotions: joy-sadness, admiration-contempt, sympathy-antipathy, satisfaction-dissatisfaction, etc.

Many psychologists state that emotive feelings are permanently bilateral and their coloration into positive or negative extremes is guided by context (circumstances, motivation, and complexity of the relationship with the triggering factor) (Jensen, 2001; Tavneer, 2008; Rusu, 2017b). There is also a set of secondary emotions that develop as a continuation of the primary instinct and can take different shapes. For example, studies have shown that in subjects who experienced “fear” as primary impact, the secondary stage presented in almost all cases a sense of “adaptation” to the new tense situation. It could be argued that the conduct of acceptance is derived from the instinct of human survival but also from the innate ability to learn, to educate oneself to meet the new requirements: “emotions are altogether acquisitions of learning and education, the same as the reasons that help maintain them; adults are dominated by social stimuli, patterns of behaviour, language, interpersonal relationships.”<sup>9</sup>

Emotional learning is therefore a developed form of secondary emotions, whose specificity is based on the mobility of feelings. The man who educated his emotions will be in a permanent process of identifying a particular type of balance, which will be achieved through motivation, that inner spring that nurtures us and regulates existence.

Music, given its structure, also employs the phenomenon of empathising, urging the audience to identify or infer the emotional state of the composer, to fuse with the one who has generated the feeling. In this case we refer to a complex process of perception, located both on the conscious and on the unconscious level of the individual, an interrelation between the cognitive and the affective. It is considered (Tavneer, 2008; Sacks, 2017; Levitin, 2013) that the empathic ability is closely related to the artistic talent, to identify and design the inner self of the creator.

Regarded as a “unblocker of problems” music has played, throughout history, an important role in behavioural therapies. We shall present hereunder the physiological explanations supporting the hypothesis that there is a range of beneficial mental reactions which exposure to music generates in the human body and which, in connection to self-managing strategies may represent essential elements in potentiating physical and mental capacities that go beyond the boundaries of motivational methodologies.

<sup>9</sup>Mahummad Tavneer (2008). *Investigation of the Factors That Cause Language Anxiety*. Thesis, University of Glasgow. doi: 10.13140/RG.2.1.1995.1129.



The proof that music has transcendental qualities can be already found in early civilizations. Biblical stories tell of King Saul's habit of calling David with his harp as often as he felt his mind and soul troubled. Closer to our times, the medical research of the past centuries has drawn attention to the effect that music has on rebalancing the human psyche. For hundreds of years researchers have been preoccupied to find out why the brain responds instinctively to musical stimuli and which is the explanation of the fact that exposure to music causes structural and neurological-functional changes in humans (Levitin, 2010; Leonard, 2008).

The first neuronal field touched by musical stimuli is the *amygdala*, the centre within our brain responsible for fear and pain, which processes exterior information and makes decisions in stressful circumstances (Glenview, Scott, Foreman, McKee, Boyatzis, & Johnston, 2008). One of the most important steps in the self-management process is to force individuals to fight the challenges that overwhelm them and thus inevitably create a stress factor. Neurological research (Levitin, 2013; Patel, 2007) has shown that the centre of the amygdala enters a sedation process as soon as the individual becomes musically active, and the strength of this physiological anesthesia is directly proportional to the level of familiarity and comfort the individual in question has with the elements of sound; in other words, the more musically cultivated the individual, the more visible the healing effect.

Medical research (Levitin, 2013)<sup>10</sup> conducted on patients with chronic disease has shown that pleasant music activates dopamine, the main neurotransmitter involved in controlling the centers of pleasure and reward within the brain by supporting emotional balancing, increasing energy and concentration level. In its turn, dopamine interacts with oxytocin, the neurohormone of happiness, which lowers the level of cortisone (the stress hormone) and creates room for the feeling of attachment (which explains the sensation of belonging together that performers experience when performing in ensembles).

The opioids, chemical substances meant to protect, which medicine considers related to morphine, are produced in general by the body when making physical effort, in order to reduce painful sensations in the body. The neuroimaging techniques of the recent years have demonstrated that strong emotions which music can trigger release a substantial quantity of opioids, minimizing the stress one experiences in highly demanding situations (Jensen, 2001; Kirk & Platon, 2012).

The neuroplasticity is one of the functions that explain the spreading of musical information in several regions of the brain, centers that remain active and interconnect into new neural networks. Like a computer, the brain acts complexly and rapidly, selecting the perceived information and decomposing it, in the case of music, into intensity, duration, and timbre; then comes the process of

<sup>10</sup>Levitin (2013). *Neurochemistry of Music*.  
[https://daniellevitin.com/levitinlab/articles/2013-TICS\\_1180.pdf](https://daniellevitin.com/levitinlab/articles/2013-TICS_1180.pdf)



recompositing, in order to generate the new reactions: “as the extraction of impulse takes place in the cochlea, the auditory cortex, the cerebral trunk and the cerebellum, the superior nervous centers in our brain receive a constant flow of information (...) this information is updated continuously (...) striving to foresee what will follow in the music, based on several factors” and thus forcing the brain to make logical inferences.

In order to draw a conclusion on the neurochemical reactions produced by music, we summarize here the areas of influence previously described:

- *Social attachment*: music releases oxytocin, the hormone of happiness;
- *Immunity*—it increases the quantity of serotonin;
- *Stress*—it balances the cortisone level;
- *Reward and motivation*—it triggers extreme, euphoric feelings, producing dopamine and opioids in quantities similar to those produced by drugs.

In neurophysiological terms, the motivational principle is explained as being the result of stimulating the centers responsible for rewards, an ensemble of impulses triggered by satisfied desires, be they:

- *Primary ones*: immediate pleasures produced by the satisfaction of physiological and security needs
- *Secondary ones*: social needs such as self-esteem, the feeling of belonging together, self-accomplishment

Explained in this manner, the motivational flow is maintained by the succession of positive experiences and the frequency of individual results, which determine the dependence on supplementary stimuli. As we have seen above, just like medicines, powerful emotions produce special chemical reactions which do not merely balance the psyche, but also trigger “the need for return”, that drug that can recall a state of well-being. Conditions such as Alzheimer, Parkinson, aphasia caused by strokes responded positively to music-based therapies: “music can affect us all, it calms us, invigorates us, soothes us, alters us or helps us organize and synchronize our work or our games, is particularly strong and has a huge therapeutic potential for patients with a variety of neurological disorders.” (Sacks, 2017)<sup>11</sup>

In 1968 *Psychological Films* California broadcast an interview with Abraham Maslow on the theory of “self-actualization” which defined motivational coordinates. As primary attitude, Maslow depicted the elementary need to induce the state of wellbeing into the subconscious and to develop, by all possible means, the sense of humour, an essential step for coping with the efforts required by self-management, social interest and interpersonal relationships which are useful elements in introspection processes, being considered psychological units for the measurement of identity, community integration, self-esteem and appreciation. He also brought up the need for clarity in the perception of reality, for *relinquishing the sense*, that the self-manager must appeal to in order to objectively analyze the situations which he confronts, to judge correctly and formulate rea-

<sup>11</sup>Sacks (2017). *Muzicologia*. Humanitas, Bucharest, p. 11.

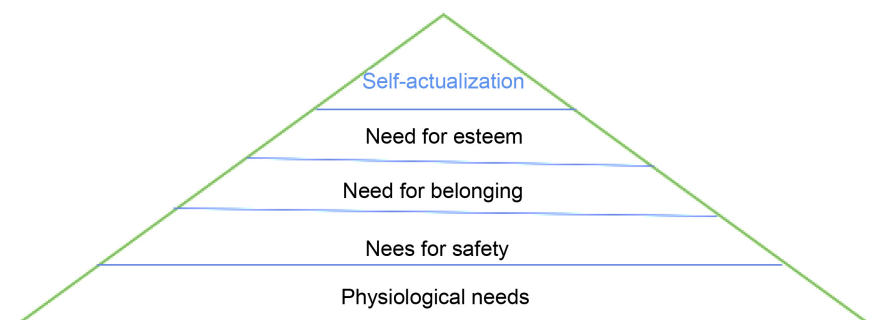
listic expectations based on concrete proof and not on thoughts influenced by transient factors. In connection to these theories, Maslow speaks about the *mystical states*<sup>12</sup> that individuals go through when experimenting profound emotions deriving from pleasures that are triggered in special situations, for instance when exposed to music, and calls such feelings “peak experiences”, which usually linger in the individual memory and produce major changes in the structure of the personality.

The same theory presents the power of creativity to enhance certain areas of the brain which might contribute to a greater psychic availability in relation to the personal development strategies. He refers mainly to the instinctive moments, when we like to be creative, as a supplementary element of affective communication of a subjective nature. This is the realm of inspiration pertaining to composers, painters, sculptors, and to all improvising artists who give free rein spontaneously to their creative impulses.

Abraham Maslow stood out in psychology due to the concepts he formulated on motivation and personality. One of the most celebrated images that define him is his “hierarchy of needs” pyramid (Figure 3), which has often been explained in relation to the theory of marketing.

A real model of conduct for personal development, “Abraham Maslow was the man who had the courage to listen to himself (...) he was called a pioneer, a visionary, a philosopher of science, an optimist. He was one of the promoters of humanistic psychology (...) he had an essential role in the emergence of two major forces in psychology: humanism and transpersonalism. Both employ human nature in all its richness and complexity (...) he realized that people involved in self-actualization are motivated by the values of the being... (...) which develop naturally in healthy individuals, without being imposed by religion or culture (...) Maslow exploited... the rich cultural life of New York and fell in love with theatre and classical music.”<sup>13</sup>

Brain imaging research on the effects of music on the body managed to reach certain generalizations about the resources considered to be highly efficient in



**Figure 3.** Maslow's hierarchy of needs.

<sup>12</sup>Abraham Maslow and Self Actualization, 1968.

<https://www.youtube.com/watch?v=7DOKZzbuJQA>

<sup>13</sup>Maslow (2007). *Motivation and Personality*. Bucharest, p. 44.

structural and sonorous terms (Kirk & Platon, 2012). Thus, in order to trigger a complex range of chemical reactions in which serotonin, dopamine and endorphins are released concomitantly, musical materials are used whose components relate to two levels, a so-called environmental or background one, a harmonic *perpetuum mobile* of no more than two or three sound clusters rich in harmonics, which alternate slowly while supporting a main tune consisting of consonant leaps, which is more often than not pentatonic<sup>14</sup> or made up of sounds taken from nature (Levitin, 2010).

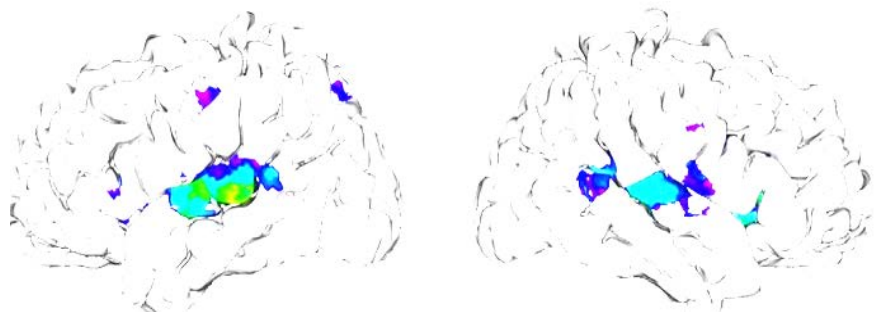
As in meditation exercises (Schön & Gordon, 2010) we observe that these clinically significant impulses actually cause a trance-like effect by engaging nervous centers responsible for triggering stress, pain, sadness, anxiety. In fact, repetitive blocks of sounds compel the brain to calm down, to refresh its functions, to detach itself from disturbing factors, to rest, and to reinterpret reality correctly. This is the reason why the songs experts employ for therapeutic purposes are composed especially for these treatments, most often using computers, based on neuroimaging findings which demonstrate the reaction of the brain to sounds which possess certain features (Griffiths, Buchel, Frackowiak, & Patterson, 1998). Other examples, used to induce states of safety, exuberance, merri-ness, appeal to the same consonant elements paired with repetitive rhythms relying on musical discourses with ludic features; for the sake of boosting physical energy we usually come across rhythmic groups made up of anapests, dotted rhythmic values, ascending melodic lines, consonant lively accompaniment made up of sixteenth notes.

Modern therapy has associated with neurosciences in order to conduct advanced research on the healing potential of music (Peretz, Gagnon, Hébert, & Macoir, 2004). The human capacity of responding to musical stimuli originates in intrauterine life, when the foetus can perceive spoken and sung sounds. The studies involving new-borns who had been exposed to musical stimuli proved that there are areas responsible for musical memory which become activated and develop when familiar elements appear in their auditory context. Moreover, since very early ages, music can be used in order to soothe the body and, which is more important, to enhance the capacity to communicate, developing the hearing centers in the brain. We can notice in the image below that one of the nervous centers stimulated when exposed to music coincides with the center of expressive language.

As we can see on **Figure 4**, language and music structures have similar syntactical information systems, intensively stimulating the frontal, temporal and primary auditory cortex areas. Studies (Jentschke, Koelsch, Sallat, & Friederici, 2008) have been demonstrated that musical abilities are strongly connected to linguistic development, memory, and attention.

It is therefore credible that music contributes significantly to human psychic

<sup>14</sup>*Happiness Frequency: Serotonin, Dopamine, Endorphin Release Music, Binaural Beats Relaxing Music.* <https://www.youtube.com/watch?v=LFGsZ6ythQQ>



**Figure 4.** Networks for music (right) and language (left)<sup>15</sup>.

and mental development, even if most people seek it for comfort, relaxation and motivation.

We have mentioned that therapists use music nowadays to reactivate brain parts deteriorated due to diseases or accidents, in the case of patients who lost their memory but nevertheless react to songs they recognize or in patients with strokes for whom attempts are done to modify cerebral mechanisms so that healthy neurons may take over the motoric and aphasic functions; doctors use musical environments in order to calm the blood flow in people who are about to undergo surgery, so that less anesthetic is required; speech therapists use musical games to communicate more easily with autistics and determine them to develop their attention; oncologists work with music in order to diminish anxiety episodes and interrupt the chain of genetic mutations that create cell anomalies and to persuade patients to attend cures that work by eliminating stress; sociologists use musical instruments for motivational purposes, in all fields in which progress is directly connected to the quantity of effort invested.

The self-management theory offers a motivation for the introspective side of our personality—a dynamic, interactive phenomenon subject to various influences. Individuals resort to the strategies they know in order to provide meaning to daily experiences, many of the significances being nevertheless subjective due to certain cultural backgrounds and education levels which pre-establish their systems of values: social reality is divided according to such dichotomies as *we-others*, *the good-the bad*, and the establishment of a asocial identity tends to define itself through rejection, bordering on aggressive expression in relation to the *other*. There is a permanent process of comparison with *the other* and an inclination, confirmed by the attribution theory, to attribute positive features to one's self and to the group one belongs to and negative features to *the other*.<sup>16</sup> (Gavreliuc, 2011).

The experiences of *catharsis* will always be influenced by the social medium and the environment we live in. The changes in personal development strategies force us to transform, to revise our identity and reshape our feelings of belong-

<sup>15</sup>Networks for Music.

<https://www.semanticscholar.org/paper/Similar-cerebral-networks-in-language%2C-music-and-Schön-Gordon/48ce45bbf19f7c645e65ca16a727c6cf239a3ab8>

<sup>16</sup>Gavreliuc (2011). *Intercultural Psychology*. Polirom Publishing House, p. 52.

ing by reference to the new components that define us. It is therefore necessary that, before anything else, we reflect on our existence with all the features that characterize us, from the primary-biological needs to the sociocultural and spiritual ones, to understand that elevated experiences (such as those triggered by musical stimuli) require first and foremost a change of paradigm, an availability for novelty, a sensitivity that we need to accept as being something beneficial and necessary.

## 5. The Effect of Music on Career Development—A Case Study

In order to demonstrate the impact that music exposure has on people's lives, as well as to strengthen the tie that exists between the personal development techniques and the psychological alterations resulted from the consumption of art, we have conducted a study in view of discovering *the cognitive factors that favor career success*.

The questionnaire was created and distributed by Academy of Music in Cluj-Napoca, Romania as part of a extended research focused on “music mindset of successful people”. 8 questions have been structured following a set of alternative responses (multiple choice questions) succeeded by 2 opened questions. Before launching the survey a pre-test on 14 respondents have been conducted in order to identify the eventual problems. Career planning experts (4) completed the reliability and validity assessment giving suggestions for reducing the measurement errors.

The research focused primarily on the presence of the effect of music in relation to the increase in one's availability for effort associated to personal development processes. In the period unfolding between June-December 2018, 68 people (A) were interviewed, professionals working in Romania in fields related to health care, public administration, psychology, business, IT and 72 people (B) who perform unskilled labor or who didn't manage to be integrated on the job market after turning 18. The respondents pertaining to *category A* were selected due to their leadership skills or to the management positions they held, elements that in our view are consistent proofs of career success.

The study aimed to measure the relationship existing between the lives of successful people and the consumption of music, as well as to demonstrate that there is a connection between mental predispositions, the absorption of information from different fields and the integration of musical education as an essential feature in maturing and developing the psychical and intellectual development of individuals.

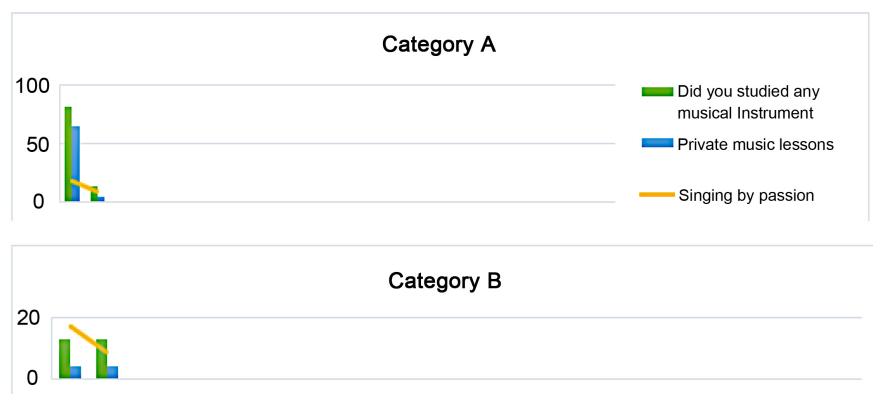
The starting point consisted in the assumption that each individual has a limited cerebral functionality and that certain impulses can activate extra neuronal connections; we therefore tried to understand whether career success is in any way favored by embedding musical education in personal development processes.

Before presenting the results of our research, we do mention that the grounds

for research had already been laid and that there were previous studies which focused on the cognitive influence that symphonic music had on intellectual development, as well as on acknowledging the profit some companies made (such as Baby Einstein<sup>17</sup>) by managing to sell thousands of CDs to “parents who wanted their children to be smarter”, of logopedic studies which explained that patients with speech and hearing impairment display considerable improvement following exposure to controlled<sup>18</sup> musical stimuli and the studies conducted in American universities emphasizing the enhancement of the ability to focus as well as the improvement of school performance for students who had been listening to symphonic music for at least 10 minutes per day.

The underlying *hypothesis* of our study consisted in considering that music can influence intellectual development by triggering a series of emotions which revitalize the functionality of individuals. Still debatable the degree of rationalizing the necessity of art consumption as integral part of the self-management steps. Is it necessary to expose ourselves to music in order to be more intellectual? Is there a possible therapy based on musical stimuli that might increase the predisposition to effort and to help as get psychologically and emotionally balanced in critical situations? Can music influence career success?

The first part of the questionnaire analyzed the degree of attending high level artistic events (symphonic concerts, opera shows) checking whether this habit is influenced by the musical education the respondents might have received in the first part of their life. 82.3% of the people interviewed in Category A declared that they had benefitted from learning experiences (e.g. private lessons in view of learning to play a musical instrument or as members in musical ensembles or who self-learned to play an instrument), while only 12% of the respondents pertaining to Category B reported having had direct contact with the musical field, most often having been compelled by certain social circumstances which imposed that specific conduct (e.g. singing in church) (**Figure 5**).



**Figure 5.** Level of music education rates. Highly successful people (Category A), Unemployed people (Category B).

<sup>17</sup><https://www.kids2.com/brands/baby-einstein/>.

<sup>18</sup>Baker & Uhlig (2011). *Voice in Music Therapy: Research and Practice*. Jessica Kingsley Publishers, London.

*“Compared with non-musicians, string players have greater somato sensory representations of finger activity, the amount of increase depending on the age of starting to play (Pantev et al., 2003). Clearly the brain develops in very specific ways in response to particular learning activities and the extent of change depends on the length of time engaged with learning. The extent of musical engagement and its nature will be a factor in the extent to which transfer can occur too the rareas”<sup>19</sup>.*

The second part of the research aimed to emphasize the attention successful people give to their free time, choosing most of the times an active type of relaxation in which, in order to distance themselves from the effort made in their field of expertise, they reconnect to another type of effort in view of leisure. Among these activities, 54% of respondents A and 6.95% of respondents B listed attending musical events (opera, symphonic concerts).

The studies conducted in the last years researched (Koelsch, 2018; Schön & Gordon, 2010) from a neuroimagicistic perspective, the profile of the emotions triggered by sound factors having been already proven the fact that there are concrete results regarding the body’s reaction to music listening. Besides the fact that the entire cognitive-affective network is activated when coming in contact with music, there are certain pieces of information regarding stress control which have been associated with exposure to auditory stimuli:

*“A behavioral study by Schulreich suggests that music-evoked emotions modulate probability weighting during risky choices. In that study, participants chose riskier lotteries significantly more often after listening to happy-sounding music compared with sad-sounding music or random tones (specifically, participants showed significantly higher decision weights associated with larger payoffs after listening to happy-sounding music). Consistent with this finding, a neuroimaging study by Halko reported that the hedonic value of music modulates risky choices and associated reward responses in amygdale and dorsal striatum. Finally, a study from my research group suggests that music evoked emotions modulate mind wandering (i.e., spontaneous, non-intentional thought). In that study, happy-sounding music (compared with sad-sounding music) was associated with less mind wandering and lower centrality of ‘default mode’ network hubs (e.g., medial orbitofrontal, anterior cingulate, and posterior cingulate cortex). These findings are consistent with findings by Wilkins who reported that the default mode network is most strongly connected when listening to preferred music.”<sup>20</sup>*

## 6. Results and Interpretation

Relying on these data, we have investigated the level of music consumption in times of intellectual overload, trying to understand whether the respondents are aware of the relationship between the sound environment and the situations that

<sup>19</sup>Susan Hallam, The Power of Music: Its Impact on the Intellectual, Social and Personal Development of Children and Young People. *International Journal of Music Education*, 28(3), 269-289. doi: 10.1177/0255761410370658.

<sup>20</sup>Koelsch (2018). Investigating the Neural Encoding of Emotion with Music. *Neuron*, 98, 1075-1079.



impose a high level of mental effort. Out of the pool of people interviewed, 72% pertaining to Category A and 28.6% pertaining to Category B stated that they use background music when working; 31% of those who answered positively have playlists that they listen to in order to enhance their level of concentration, most of them understanding and exploiting the effect of music while working, so that they give themselves an energy boost and a productive physiological state. Noteworthy the fact that individuals who have a demanding career (Category A) are more willing to introduce in their work routine moments of music consumption in order to rest, to relax mentally or to maintain balance in stressful situations when clarity and objectivity in decision-making is required.

Social belonging also determines the individual's relationship with music. 61% of the overall number of respondents A explained that one of the reasons for which they enjoy public shows is that they offer them the chance to connect to a certain type of community; the more elevated the event, the more refined the social group; this results in the satisfaction provided by the integration in a valid value system. Personal motivation and self-esteem increase implicitly along with the awareness that the specific social group has defined the individual's social rank and status, significantly contributing to the image he/she will display from that moment on.

## 7. Conclusion

Research conducted in the past years revealed the existence of several types of influence that music has on people's lives. Music provides benefits to the society and to the economy having the capacity to transform education, culture, health care, creativity. Rendering communication more potent, musical messages transcend words helping individuals to surpass their limits, providing them the freedom to connect to the most concealed emotion. It often happens to observe that, for some adolescents, music acts as a second reality invested with all the things they do and think, invested with multiple meanings and turned into a valuable existential means.

More often than not music is associated with a source of positive energy which influences people's lives conferring a different meaning to current events, contributing to the processes of individual introspection. Psychology emphasizes the fact that music is an essential element in defining identity and human value:

*"The first dimension includes statements about self-related thoughts (e.g., music helps me think about myself), emotions and sentiments (e.g., music conveys feelings), absorption (e.g., music distracts my mind from the outside world), escapism (e.g., music makes me forget about reality), coping (e.g., music makes me believe I'm better able to cope with my worries), solace (e.g., music gives comfort to me when I'm sad), and meaning (e.g., music adds meaning to my life)."*<sup>21</sup>

<sup>21</sup>Thomas Schäfer, *The Psychological Functions of Musiclistening*. Published online 2013. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3741536/>

Music can produce physiological changes which turn into concrete high-value functional outcomes, activating more than the common capacities of the brain. It is definitely an antidote for the hectic world we live in. Contemporary science, be it medicine or psychology, regards the field of music as a mystic pole that produces changes in the human nature. Current research is conducted mostly empirically, starting rather from the effect towards the cause, with the ambition to demonstrate the categorical influence that music has on the neuronal networks. Special machines are devised to monitor cerebral activity in order to accomplish clinical research on the impact of certain music styles on human beings. We believe that in this regard a supplementary interest from musicians who have the expertise to select from the literature those titles that correspond to peoples' special needs and to motivate the necessity of integrating them into processes of personal development or recuperation, as medicine sees them, would be a necessary contribution in order to support the growth of music therapy as a domain so necessary in our times.

### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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