

## About skills, talent and genius

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**Abstract:** *In the field of music, the holding of specific skills, but also the degree of their manifestation, directly determines the amount of time allocated for learning, as well as the quality of performance. Over time, various psychologists and pedagogues have researched in this field, the common goal being to find ways to identify and measure synthetic structural elements called musical aptitudes. Once formed, the musical skills can evolve towards talent, this being the proof of their superior development, as well as other personality traits leading to the achievement of the original results in a field. In a small number of individuals, talent can go to genius, originality, in this case, accompanied by profound meanings that propel the creation above the time the author lives. The dividing line between talent and genius is difficult to establish. However, creativity, prolificity and originality are the main dimensions of genius, at least in sound art.*

**Keywords:** *skills, talent, genius, heredity, environment, education*

### 1. Introduction

Science of heredity – genetics – proves the transmission through the genetic code of all the psychic characteristics specific to the human being: memory, intelligence, skills, talent, feelings, behavior, temperament, etc. Therefore, in the opinion of psychologists, evolutionary trajectory of mankind will undoubtedly belong to the psychic plane, physical evolution being considered long ago. In the conception of biologist Lucian Gavrilă, genetics is a “lady of honor” of modern science, “a demon of all the sciences that casts light on the darkest nuggets of the human soul” (Oancea-Ursu 1998, VII). These are the reasons why today most people are interested in knowing the effects of heredity on the physical traits, personality, and intellectual capabilities of their own children.

The initial formative element on which the human being can not deny is hereditary dowry, a set of features that can not be chosen, but only conscious and managed, on the one hand, by the educational environment in which the child or

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adolescent develops (family, education system etc.), and on the other hand, or better still, by the mature person. Therefore, heredity is the genetic mechanism by which parents transmit to children the genetic characters of morphological, physiological, and biochemical order, or, in other words, that property of living beings to transmit to the offspring properties acquired through phylogenesis. The enunciation of the laws of heredity, the consequence of deciphering the simplest aspects of the hereditary phenomenon, belongs to Gregor Mendel, an Augustinian monk with science concerns and considered founder of genetics.

With regard to gene mapping, more precisely their localization in chromosomes, the research is not yet completed. If some genes were easily localized, others involved in determining personality and morphogenesis features were largely unable to locate on human chromosomes. Genes responsible for determining complex characters with continuous variability, such as aptitude, talent, intelligence and temperament, have a diverse distribution that is located on the same chromosome or on different chromosomes. However, what scientists have proved is that personality traits are conditioned by the processes of the hereditary complex, which contribute to the development of the central nervous system.

The hereditary dangers determine, on the one hand, the anatomic physiological features of the individual, and on the other, the structure and functionality of the psychic components. In the psychology of education, studying genetic factors that compete with psychic evolution is an important area for researchers. Under the influence of environmental factors, the individual goes through a number of psychological processes throughout his life. For this reason, psychologists admit that psychological evolution is not conditioned by genetic factors alone. More precisely, what heredity transmits are chromosomes and genes considered as predispositions, in no way well-defined psychic features.

The qualitative and quantitative relationships between the two categories of factors – genetic and environmental – can not be determined with precision, they differ from one individual to another, but also from one psychic process to another. “The more complex a psychic function, the less it depends on heredity” (Nicola 2003, 97) René Zazzo appreciates, and Gordon Allport considers that “no trait or quality is exclusively hereditary and none is exclusive environmental background” (Gordon 1981, 35). Therefore, native features such as the skill set or talent, so important for the individual's good evolution in the field of art and musical culture, can only be cultivated through the environmental factors to bring him personality.

## 2. Theories and concepts

Together with creative potential and skills, the skill set is a defining component within the instrumental-operational subsystem of the personality, which determines a specific situation of the individual on the scale of skills and values. In other words, the aptitude set is an ensemble of native-based mental attributes, develops throughout life, acquiring different levels of structuring and functioning, and ensuring the individual's success in a field of activity.

Thus, individuals can be distinguished between themselves both according to the ease with which an activity is carried out, and by the level of the results obtained. In the field of sound art, the possession of specific skills, but also the extent to which they manifest themselves, directly determines the amount of time allocated to learning as well as the quality of performance. The presence of an aptitude is manifested through three parameters called by the psychologists "indicators of the presence of aptitude", namely: 1) the ease of carrying out the activities specific to a field; 2) the effectiveness of all practical or mental actions; 3) the final result, which presents a note of originality and unlike other people.

Depending on the area of manifestation, the skills can be both general and special. Of the activities undertaken by the individual, most of them involve the existence of general and complex skills such as intelligence, creative imagination and memory. The special skills have a limited area of expression, which does not diminish their importance, and are related to areas such as sound art, plastic art, choreographic art, literary art, pedagogical arts, sports, mathematics, technique etc.

From the scientific point of view, research confirms the existence of genes that have the role of transmitting certain abilities to the descendants in the field of music. However, since they are not identified and cultivated from as young as possible, genetically inherited skills are easily lost. Receiving music lessons, almost any child can learn in a variable period of time to interpret vocal or instrumental, but learning time and performance in rare cases will be equal to a child who has inherited from parents or other ascendants their skills music.

Various psychologists and pedagogues have researched in this field, the common objective being to find the means of identifying and measuring synthetic structural elements called "musical skills". In 1922, biologist Valentin Haecker and neuropsychologist Theodor Ziehen (Buhler 2001, 166) delineated five main components: 1) sensory - the ability to discriminate different changes in sound properties such as height, duration and intensity; 2) mnemonic - the ability to retain and reproduce sound by respecting its properties; 3) synthetic - differentiation of motives, themes, rhythm structure etc.; 4) motoric - reproduction

of the sound heard through the voice or instrument; 5) ideative - the ability to make connections between musical work and ideological background.

On the other hand, Hungarian psychologist Geza Révész (2001) dissociates musicality from musical skills. In his conception, musicality represents the attitude of the person towards music, while the skills are considered to be the “means” used by the musician in his work. As far as musical skills are concerned, he systematises the following dimensions: 1) rhythm sense – faithful reproduction of rhythmic formulas; 2) absolute hearing – identification of sounds by their height; 3) octave recognition; 4) relative hearing – sensitivity to intervals; 5) analytical perception – understanding a combination of two, three or more sounds; 6) perception and reproduction of songs; 7) the ability to sing after hearing.

Depending on the contribution to the development of individual musicality, Révész considers that the most important abilities are interpretation after hearing, absolute hearing, relative hearing, and analytical perception. Subsequently, his conception was challenged, the reason being the dissolution of skills and musicality, which is unnatural as long as the latter is nothing more than a consequence of the individual's psychic skills and characteristics.

On the other hand, German psychologist Johannes von Kries (Révész 2001, 135) defines musical skills from three perspectives: 1) intellectual musicality – expressed through the sense of rhythm, musical hearing and musical memory; 2) emotional musicality – the emotional reaction of the individual in the presence of music; 3) creative musicality – embodied in creative imagination, inventiveness and originality.

In 1972, psychologists Alexandru Roșca and Beniamin Zörgö (1972, 74) distinguished in the structure of musical skills 25 components that they grouped into five categories: 1) musical sensations and musical sensibility – perception of height, intensity, duration, rhythm etc .; 2) musical activity – control of height, intensity, duration, rhythm and timbre; 3) musical memory and imagination – visual and motor imagery duplicated by imagination; 4) musical intelligence – free musical associations, musical reflection and general intelligence; 5) musical feelings – musical taste, affective reaction in the presence of music, but also the ability to express emotions and feelings with the help of music.

However, the hypostasis of the individual in relation to music implies the qualitative treatment of two-dimensional skills (Vasile 2004, 21): 1) the general skill level, premised to love music and become a listener or amateur interpreter; 2) the level of special skills, a prerequisite for professionalism in the field of music. According to Belgian musicologist Edgar Willems, the melodic, rhythmic and harmonic senses are fundamental skills, their existence allowing the individual a

good interpretation and reception of music as a result of physiological, emotional and intellectual reactions.

At present, researchers – psychologists and musicians – agree on the fact that all children have musical skills but manifested in varying degrees. In this respect, Vanda Weidenbach states: “All people have a potential for musical performances” (Weidenbach 1996, 3-7). Therefore, the way the individual's skills will contribute to his or her development in the field of music will be determined by the most important external educational factors: the family and the education system.

In the nineteenth century, for the first time, the English geneticist Francis Galton had made herbarial trees in a way that corresponds to scientific norms. His research focused on individuals with unusual intellectual abilities or, as he called them, “eminent”. Galton considers the very rare eminence, which has an incidence of only 0.025% among the population, more precisely an individual to several million. In order to understand the mechanisms of heredity, he drew up and studied on the basis of documents family trees of families with members recognized for their outstanding work in various fields.

His first work, published in 1869, systematically deals with the degree to which the special psychic features he calls “eminence, talent and genius” are transmitted from one generation to the next. Following research into heredity, Galton has shown that it is possible for a descendant to inherit certain intellectual endowments from parents or a distant relative. At the same time, he notes that the families chosen for the study have been prolific for at least two generations in various fields such as literature, music, plastic arts, mathematics or sports.

The Bach family, recognized for the genius of musical creations, but also for the existence of two identical twins, as well as the Scarlatti family – Alessandro, the father, and Domenico, the son – constituted research topics for Galton. Both the originality of personal creations and the social value attributed to each have helped him to roughly rank members with musical concerns belonging to a family.

In the case of the Bach family, as in the other, he concluded that talent is a feature that is manifested continuously over several generations, but in different quantitative degrees. Moreover, by precisely determining the number of eminent members of a family, Galton has demonstrated how many individuals – fathers, brothers and children – appear in the tree of a creator of Bach's talisman. Thus, in this family of 57 members of 5 generations, 15 were remarkable composers. In turn, Johann Sebastian Bach had 20 children, of which 10 were musically endowed.

Later, Galton determined the level at which each member of the family was raised in relation to Bach, grouped them into groups, and within each set the coefficient of the eminent parents. Studying the differences between these figures,

Galton revealed an important aspect in the hereditary transmission of superior capacities, namely: “the increasing or decreasing influence of inbornness” (Galton 2000). Thus, by introducing the calculation into the study of quantitative traits, Galton became the initiator of quantitative genetics.

On the basis of the data available, he demonstrated that the chances of an individual related to an eminent creator are large enough for him to become eminent. Therefore, eminence, rare psychic endowment, can be inherited. On the other hand, he considers the eminence an infallible gift, the individual possessing it is capable of overcoming any shortcomings generated by the environmental or educational factors, and thus affirming. As later to be demonstrated, this dissolutive hypothesis is incorrect, and environmental influences can not be separated from those of heredity in the complex process of formativity.

However, there is an important aspect not to be missed, Galton's studies focused only on the families of eminent individuals, so its conclusions can not be applied to families composed by ordinary individuals. If, in the case of eminent individuals, we are dealing with qualities that manifest in the extreme degree, in the case of common individuals the psychological evolution depends to a great extent on the interaction between the internal and the external factors.

American psychologist Carl Emil Seashore, in the *Psychology of Musical Talent Psychology* published in 1919, establishes six fundamental capabilities necessary for the manifestation of musical talent: the sense of height, intensity, time unity, harmony, rhythm and memory of sounds. It also develops tests to measure these capacities, later disputed by musicians, on the grounds that the fragmentary evaluation of the aforementioned functions renders the essence of musical talents out of sight.

One of the most well-grounded talent concepts belongs to Joanne Haroutounian (Haroutounian 2000), a professor at George Mason University's music faculty in the United States of America. In 2000, it defined talent through three basic dimensions: 1) musical skills and abilities; 2) creative interpretation; 3) commitment. These three fundamental dimensions are supported, on the one hand, by specialized literature and substantive analysis of evaluation scales, and, on the other, by discussions with experts in the field, including music teachers.

The first dimension – musical skills and abilities – contains the following parameters: 1) tonal memory – the ability to remind mental musical passages and to think musically; 2) rhythmic sense – supporting a continuous rhythm with fidelity, reproducing some rhythmic formulas containing different durations and rapid and expressive adaptation to changes in rhythm and tempo; 3) perceptual discrimination – the ability to sense melodic, rhythmic and harmonic similarities or differences between two musical passages and to conclude if they are identical or

different; 4) contextual discrimination – the level of comprehensibility manifested by the ability to identify rhythmic-melodic formats, musical themes, instruments or groups of instruments during a musical work; 5) the interpretation – the ability of the individual to easily play, vocal or instrumental, a musical work. Although this parameter is the most important and at the same time easy to appreciate, it can not be conceived in the absence of others.

The creative interpretation, the second dimension of the talent according to Joanne Haroutounian, is defined by: 1) experimentation with sounds – the ability to achieve musical ideas fluently, rhythmically, melodically and harmonically, according to the level of psychological development specific age of the individual; 2) aesthetic sensitivity – the ability to notice slight changes of character (modal, tonal, agonizing, dynamic, timbre, etc.) during a musical work; 3) expressiveness – the ability to engage in musical performance or the way in which the individual behaves in the presence of music at the psychic level.

The third part of the talent – the commitment – is determined by the following functions: 1) perseverance – the individual demonstrates interest in all musical activities, preparing himself deliberately and systematically, sometimes throughout his life; 2) the willingness to update and elaborate ideas – refers to the individual's ability, reached the formal stage of thinking, to be critical and self-critical to the fulfillment of the highest musical ideals.

In a small number of individuals, talent can go to genius, originality, in this case, accompanied by profound meanings that propels creation above the time the author lives. That's why, as witness in this sense as the history of music, the genius of musical creations was not always recognized at the time of its appearance, but later posterity played an important role in this equation. The dividing line between talent and genius is difficult to establish. However, creativity, prolificity and originality are the main dimensions of genius, at least in sound art.

### **3. Conclusion**

In the field of musical psychology and beyond, the problematic complex of skills and talent has held and still holds a special place. Over the years, psychologists like Galton have given heredity a decisive role in this issue, minimizing or even challenging environmental conditions, a theory that, as has been demonstrated later, is not founded. The results of this research have unequivocally demonstrated that musical skills can be transmitted genetically but, ultimately, the environment and education are the factors that determine their identification and development so that the individual has the opportunity to gain access to talent or genius.

In conclusion, if the fundamental educational exponents of the environment – the family and the educational system – do not interfere in probing the psychic potential of the child or adolescent, the affirmation of those with musical capacities will depend only on the hereditary level of intelligence and hazard. That is why it is necessary to increase the interest in the discovery, cultivation and promotion of authentic talents, depending on the quality of tomorrow's cultural and musical landscape. Therefore, it is imperative that the performance in the field of music be determined not only by the potential held in the hereditary dowry of the individual, but also by ensuring the necessary environmental conditions for its manifestation.

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