



MUSICAL EDUCATION



The intelligence of musical talent

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Illustration: *The Little Mozart*
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1. Intelligence

There are as many definitions as paradigms that seek to explain what intelligence is. Some of these paradigms focus their attention on quantitative differences identified mainly by the results provided by measurements done with psychological material; some others focus on intelligence genesis and development. Innate or environmentalist positions would lead to the classic discussion on the specific importance that inheritance and the environment have on intelligence. There is no doubt that when we speak of exceptional intelligence we must always make a few clarifications of terminology. When we refer to the High Capacities we include intellectual concepts as "talented", "genius" and "precocious." In the case we are interested on, we will have to add the term "musical talent."

It is necessary that from the beginning we wonder about some few key questions. What is for us intelligence? How does it manifest? When is it more important and how can we stimulate it? It is obvious that all these issues would be the object of deep reflection and analysis that is beyond the scope of this article but, nevertheless, we can contribute with some answers. All of these issues will be some general inputs that will help us to better understand the sense that the term "musical talent" has for us.



Intelligence has been defined in many ways. The most traditional is the one that has as reference the measure of the Intellectual Coefficient. This would be a definition that needs of standardized aid materials to assess intelligence according to the results provided by these materials. From this point of view intelligence is understood by the results provided by intelligence tests. That is a redundant definition which in turn tells us nothing about its meaning and features. Other definitions are more descriptive and are closer to the reality. Intelligence is a construct that is achieved by direct observation or by using any of the models of the scientific method (indirect observation). In practice we observe some behaviors that are considered more intelligent than others. Understood like this, intelligence is the capability of individuals to act appropriately in a specific context and situation taking into account the specific patterns and social values of the moment. It would also be the ability to solve problems and also the mechanism of adaptation that helps us to effectively resolve in an efficient way the various situations encountered during the long life. Intelligence is the way of logical thinking that gives us significant information about a problem and that allows us to solve them effectively. It can be considered intelligent people the ones who take into account the thoughts of others with the aim of anticipating to the action or to understand a message and act accordingly. Intelligence is also the ability to have more and better idea about the world and the relationships between things in order to better understand and respond appropriately not only for their own benefit but for the community sake. Finally, we could add many other definitions of this concept which in turn has many dimensions: quantity, quality, adaptation, communication and problem solving. We could eventually add that all of them would be valid depending on the paradigm from which we consider and, especially, depending on the historical and social context in which it occurs. All this makes us consider certain behaviors as more or less intelligent.

Intelligent behavior is usually located in the exclusive field of human behavior. This statement could not be entirely true. In animal life there are many ways to be clever.

What differentiates humans from other living beings is probably the ability to provide with feelings and emotions any intelligent behavior. And I insist on "probably" because there are some works on alleged reactions expressed by animals and vegetables. Reactions are perhaps only this, reactions with out any emotional component. This diversity present in life, wide and forceful, can be observed between people. These people show physical and intellectual differences that respond to their diversity. For this reason we should not be surprised to the fact that behaviors, attitudes, interests and results of an action are different. When we refer to the High Capacities we consider that it is the result of construct achieved from the interaction between different conceptualizations of intelligence. Therefore, according to the explanatory models outlined above, we find people who show intelligence superior to the others. If we only took in to account



the quantitative variable provided by the results of the standardized tests, the High Capacities would be those that respond to an Intelligence Quotient equal or higher than 130. This measure that defines High Capacities is considered outdated since it does not take into account the dynamic and qualitative aspects related to emotions, or personal skills, or experience, or motivation, or creativity. For this reason we must distinguish between different manifestations of High Capacities and how they are evidenced.

2. High Intellectual Capacities

Different manifestations of High Capacities:

Giftedness

It is the manifestation of intellectual capabilities based on a good level in all fields, with creativity, a self-positive, a good motivation and proper socialization. Gifted people use the combined intellectual resources effectively. These people present an acceptable or quite good academic performance without necessarily excel in all areas but in those that are of their interest. People with an outstanding musical intelligence would not be the most representative of giftedness. It is established that this expression can only be used when maturation and evolution of the individuals are stabilized and consolidated. This does not happen before adolescence.

Talent

It is the manifestation of a certain intellectual capacity in a particular area of knowledge or field of the conduct. In other areas or fields these people may respond normally, and sometimes below what would be expected. Therefore, we should not expect a great academic result except in the domains they stand out. Children with musical intelligence would be representative of this capacity. We would observe a combined action of: capacity for rhythm, creative expression, visual and auditory memory, motor skills and coordination body especially of the upper extremities. Feelings and emotions concentrate the main intellectual resources without interfering with the rest of learning. They can be, to some extent, good students when they combine this talent with more general capacities.



Genius

It is an adjective applied to those who demonstrate an extraordinary ability in some specific competence which allow them to perform an important work in the context they live and which is recognized as exceptional. This may occur in the case of musical talents.

Precocity

It is the manifestation of a learning process that is better and faster than the corresponding to the age. It is closely linked to the rate of maturation, but upon reaching adulthood the learning process could be similar to the rest of the companions of the same age. The faster maturing in the early years does not follow necessarily the same rate. What they do when they are children and what they end up to do when they are adults can be different. Some musicians who have been precocious have been considered as geniuses. Others have been just as musicians with enough capacity for music and instrumentation, thanks in part to the innate abilities to play an instrument and also to the continued training. When precocity allows children to compete with adults in equal conditions, this precocity is said prodigy.

3. *Manifestation of High Capacities*

In a precise period of evolution precocity, talent and genius can be jointly manifested and later on the giftedness. One can be a genius, a talented and a gifted with the addition of precocity if these expressions occur before adolescence. Generally, a precocious talent and genius will have these conditions when being adults. We will have to wait a while to dispel any doubt about that. In the case of music we have notorious examples of the manifestation of the three conditions. One can also be talented and precocious, but not a genius if his or her work has not got enough social recognition in the time of occurrence. The potentiality determines the concept, the time the precocity, the social recognition the genius, jointly contributing to the emergence of talent.

I'll develop very briefly the manifestation of musical talent and its indicators. The intelligence manifests in many ways. It is not a monolithic concept but multiple and factorial. We do not talk about intelligence but about several intelligences among which we highlight nine: kinesthetic, logical-mathematical, linguistic, spatial, interpersonal, intrapersonal, musical, natural (Gardner, 1995) and emotional (Goleman, 1996). In the future we will discover other intelligences, which will be important for the development of certain areas of social development



and will emerge from the virtual communication and technology (we could talk about cybernetics intelligence).

The exceptional ability in the use of hands is acquired and evolves from the time that the man stands on the lower extremities and leaves free the hands. It is the emergence of an intelligence that is different from that of other primates and that leads to the manual skills and the development of the intelligence defined as problem solving. Ontogenesis (the evolution of an individual along his life) recapitulates phylogeny (evolution of the human species). The key moments of the brain plasticity and critical periods are identified with the early developmental stages in which the superior neurological structures and neural network connections shape. Postural change from horizontally to verticality resulted in a immeasurable number of experiences that enabled the acquisition of skills and knowledge of the world. Sometimes we are not sufficiently aware of these early steps in life that exert a great influence on future skills. Here is where heritage and environment mix defining the conditions for higher specific future skills: the talents. Here in the present work, when we talk about talents, we'll refer to musical talents.

In the case of music, the high intelligence would have a standard in a complex talent that combines specific skills for perceptual speed (in scores), symbolic representation (in notes), spatial-temporal ability and mobility coordination (hands and feet depending on the instrument), creativity (artistic talent in general but with some reservations), and kinesthetic and auditory memory (body movement and sounds). These capabilities can start early or not and they constitute along the maturing period a talent close to the giftedness.

Focusing specifically on the musical talent, we believe that there is a biological component, hardly contrastable though it can be intuited, once evaluated the High Capacities in precocious and geniuses. With the knowledge that we have of the structure and performance of the brain we think that there is not a specific brain area in which we can place the musical intelligence like it happens with the language. Despite of this, it is an intelligence separated from other intelligences. It happen that autistic child can play well even with an alteration of the oral communication. This would show that probably this intelligence would be this very spread among different areas with different functions: visual and auditory memory, perception, mobility coordination, sensitivity, emotions, the symbolic representation, pleasure and creativity in a set of tasks that would have an important role in the final production of a musical piece (Gardner, 1995). Socially music has had an important role in communication between people, that is the case of the religious music and the music played in cultural events. It is also important the role it has in the acquisition of basic skills. In the health field, the musical talent is used for search



results psychotherapeutic in certain emotional, in affective or cognitive and mobility dysfunctions, and it is a reference point in the techniques of sensory and body stimulation.

Throughout humanity history, music has had significant functions and evolutionarily different. It is a universal language that is at the service of cultural evolution of all civilizations. Computational theories defend its existence as an innate ability that is present from birth, which is maintained in latent form and requiring trigger situations or stimuli for these capabilities to be manifested. From this, it is deducible the important role that we attribute to the most immediate environment in the emerging of musical talent. Once manifested, precocity is more common in the interpretive skills than those related to the creation or musical composition that requires a certain degree of maturity (Winner, 2003). These are two domains that do not manifest necessarily at the same time.

I'll give some examples, moreover known, which will help us understand how the musical talent manifests. Mozart composed and performed since the early years of his childhood. The atmosphere at home was very favorable. Born in the appropriate moment, in a stimulating family and in a society that recognized his talent. He expressed his talent first as an interpreter and later as a composer. In order to be creative he had to break stereotypes and move against the cultural movement of his time. This is not a feature of the interpreters. Mozart was an exception. Yehudi Menuhin already played when he was seven years old. The atmosphere was also important to him. When he was three years old he was attending the concerts with their parents. He wanted to have a violin like the one of Persinger and requested that he was his teacher. And so it was. The result is well known. With ten years he was an internationally known musician. Bach, Mendelssohn and Beethoven were great interpreters in their childhood.

4. Early detection

The detection of the exceptional musical qualities should be done early. It is almost a prerequisite if someone wants to become an established talent. As it is a capacity that is hardly measurable by psychometric materials, we must use the observation capability for detecting them. The potential becomes observable from the first two years taking the usual precautions. The prodigious interpretation is effective at the age of around four years depending on the instrument. The violin is easier than the piano, for example. The characteristics that identify a musical talent are related to the sensitivity, rhythm, interest in the music auditions and intonation. These characteristics manifest better and faster than in other children of the same age. They also have a great memory of the music pieces that they have listened even though of the ones they have only listened once. They invent songs; interpret with the available instruments without



much difficulty. They are comfortable in musical activities. They have a good development of the audition sharpness since birth and they are interested in musical tones in a more exigent way than other children. They sing accurately, remember the songs and develop their skills in parallel with the development of language. Arthur Rubinstein, when he was three he played without any training the piece his sister was interpreting. They learn and perform in a very clear and precise way. Of course, when we refer to these children we are referring to geniuses, to prodigious and exceptional musical talents. But these characteristics not always manifest themselves in a precise manner.

Among the musical talents we find the same diversity than in the rest of the people. In these early years of children the productions of precocious children may be indicators of talent in the adolescence or adulthood. But we can find that after the first years these capabilities will become a remarkable intelligence, but without reaching talent. The family and opportunities, combined with the genetic load, would be a catalyzer for the demonstration of a high musical capability. It is here where the concept of musical talent is consolidated, not before or without these conditions. It is highly likely that precocious leads to talent. First, they are good interpreters and then good composers but never on the contrary. The reasons are more a mechanism of social selection that does not allow that all precocious becomes creative adults. It is very simple; there is no space for all interested in creating.

The reflections of Gardner (Gardner, 2001), in his theory of multiple intelligences on instrumental skills, are essential to understanding the differences in the quality instrumental. Which makes different the way of playing an instrument is not neither the technique itself nor the virtuosity of the musician but the executive intelligence of the interpretation. Actually, it is the human intentionality of the interpretation itself.

5. How can we enhance the musical talent?

Which are the most appropriate actions to enhance the high intellectual capacities for the music? Before we have enough awareness of the existence of a musical talent we'll observe that from the early stages of talented people they are receiving a great deal of emotional, sensorial, physical and affective stimuli. That is an enabling atmosphere. The parents play an important role in the existence of these stimuli that will be the trigger for the High Capacity. Secondly, opportunities must be given to them. Mozart was fortunate to have parents interested in the music that constantly listened and enjoyed at home, attending concerts together, and creating all the necessary opportunities.



The cultural status of a family determines the activities the children can do. The cultural surroundings predispose to a good performance with one of more instruments. They facilitate the access to certain activities and make possible that the interests of the children correspond with their capacities. Third, the education at school is very important. The role of the teachers is important in the acquisition of competitions. This acquisition will be better if they correspond with their capacities. It is very important not to put limits to their knowledge. Each individual has its own limits. The teacher must facilitate that all the talents are evidenced. The school must give opportunities. To do so, the curricula must be open and flexible. This requires an effort from the teachers. They have to observe the needs that appear in their pupils and their difficulties and act consequently. The teachers must know the appropriate methodologies, strategies and the material for all their pupils included the ones that present high capacities. A good teacher have to provoke pupils to make discoveries, to provide them with material, to be tolerant, to accept the difference between the pupils, to admit different working speeds, to expect that some pupils get better results that the ones corresponding to the rest of classmate. Fourth, in some cases, over stimulation is advised either at school or outside it. In all the cases it is necessary to enhance all the specific abilities.

All the proposed measures are appropriate for the musical talents. These measures can be understood from the following picture. As can be seen, measures and the spaces of intervention are presented.

Measures at School

	Ordinary	Extraordinary	Exceptional
General strategies of organisation	Natural diversification of groupings. Mentoring or tutoring students over others.	Partial clusters within the same group, by affinities and duties.	
Specific strategies of organisation	Methodological diversification. Working with experts in the classroom.	Partial clustering with other groups for specific activities. (i.e. with groups of different age)	Flexibility on the duration of a education cycle (reduction of time)
Measures affecting the organization of the curriculum	Flexibility and diversification of contents. Enrichment of contents: random and radial.	Increase of contents and / or compaction of areas. Enrichment Individualized programs	Advancement of contents with or without flexibility. (possible in certain groupings of pupils)



Measures outside the School

Training of non academic abilities

Meta cognitive training

In my opinion, acceleration is not the unique measure of intervention. And neither do I think is good to make fixed groups of pupils with similar capacity. In some particular cases partial measures can be adopted: to group pupils according to matters or projects by which they are motivated. The stimulation between similar capacities gives rise to very interesting results. However, I am favourable to apply more normalised models in an inclusive school. I propose to design models that enrich the curricula contents. These models will help the development of the talent. Therefore, the social relationships are not affected. But each case is different. The best answer will be the most advisable for each pupil. Torrance (1994) affirmed that “the gifted child is not more than a child, but a gifted child”. The same can be said of the musical talent. Everybody wants the children with talent are happy. I am sure that all families with a talented child wish this.

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