

## NATURE VERSUS NURTURE: A REVISITED EXPLANATORY SYNTHESIS ON THE DEVELOPMENT OF MUSICAL ABILITIES

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### *Abstract*

*This article iterates and synthesizes findings from literature reviews that intended to describe and present the development of musical abilities. In this matter, the ability of music could be both influenced by society and/or by blood, in terms of genes; both science and experience contribute to this development. This study employed a descriptive method to gather information about present existing conditions through a library method and literature review. The data were analyzed using explanatory synthesis. Based on the literature review, the researcher identified two comparative views on the development of musical abilities: nature and nurture. The researcher used four criteria in synthesizing reviews such as cognitive development, intelligence, the relationship between nature and nurture, and musicality is nature, musical ability is nurtured. In conclusion, when it comes to musical ability, nature works in tandem with nurture; musical talent takes nature and nurture. The result of the perception in the origins and appearance of both the intelligence and action dwells in the discernment of how hereditary and social factors are involved in the active and interactional processes that specify and direct its development. The source and power of music could be some determined by association and/or by ancestry, in terms of genes; both scientific discipline and natural event impart to the development of musical abilities.*

**Keywords:** Development, Explanatory Synthesis, Musical Abilities, Nature, Nurture

### INTRODUCTION

According to Gottschalk, music is a psyche-physical phenomenon; it is in its essence a sensation and in its development, an ideal - not being confined to the precise and restricted meaning of the world, music has the advantage over literature that everyone can assimilate to its passion (Rivadelo, 1987). In this matter, the ability of music could be both influenced by society and/or by blood, in terms of genes; both science and experience contribute to this development.

Nature pertains to all those attributes and abilities that are ascertained by one's genes. In this case, this is divergent from the characteristics you are born with, because these may have been observed by your prenatal surroundings. In addition, some hereditary characteristics only materialize later in the process as an outcome of the maturation transformation. Advocates of the nature view have been called natavists. On the other hand, nurture attributes to the influences and importance of experience, that is, what is discovered through interacting and communicating with the socio-physical environment. Advocacies of the nurture aspect are empiricists embracing the view that all consciousness and knowledge is obtained through exposure and experience. Others may be common with the term "empirical support," where data is accumulated through sensory experiences rather than a dependence on thoughts and ideas.

In this condition, it has been noted that neither nature nor nurture can render impeccable explanations on their own. All components are a product of nature and nurture. Hebb employed

the resemblance of the length and width of a rectangle – neither can be said to contribute more to the area of the rectangle, they are both important. In this light, this study aimed to describe and present the development of musical abilities that could be both influenced by society and/or by genetics; both science and experience may contribute to this development.

## LITERATURE REVIEW

### Philosophical Considerations of the Nature versus Nurture

It is seldom an enigma whether the "trait" being assessed is indeed an authentic form. A significant response has been dedicated to measuring the heritability of intelligence (normally the intelligence quotient, or I.Q.), but there is yet some disparity as to what accurately "intelligence" is. On the concept of determinism and free will, if genes do provide essentially to the development of personal attributes such as personality and intelligence, then various phenomenon indicates that genes ascertain who we are. On the other hand, biological determinism is the thesis that genes determine who we are. Less, if any, scientists would obtain such a claim; nevertheless, several are implicated in doing so. Others have denoted that the proposition of the "nature versus nurture" discussion resembles to oppose the importance of a free will. Further, especially, if all our traits are defined by our genes, by chance, by our environment, or by some succession of these simulating together, then there appears to be little room for free will. This line of rationalizing infers that the "nature versus nurture" debate leads to overstating the degree to which individual human behavior can be predicted based on the science of genetics and the environment. Moreover, in this line of rationalizing, it should also be tended that biology may ascertain our abilities, but free will still circumscribe what we do with our abilities.

### Nature and Nurture on the Brain Development

In the study of Stiles (2011), the fundamental facts about brain development should be of critical importance to neuropsychologists trying to understand the relationship between brain and behavioral development. Nonetheless, the underlying presuppositions of most contemporary psychological models indicate mostly outdated notions regarding how the biological system occurs and what it intends to be innate. Consequently, contemporary models of brain development confront the foundational constructs of nature versus nurture discussion. The opener in conceding the emergence and origins of both the behavior and brain deceives in understanding how environmental and inherited determinants are contracted in the interactive and dynamic processes that determine and guide the expansion of the neurobehavioral operation.

### Nature and Nurture on the Human Development

On the other hand, Singh (2012) explored what social science might contribute to building a better understanding of relations between 'nature' and 'nurture' in human development. Singh first framed developing scientific prospects on the part of the environment in the behavioral and developmental sciences, starting with a broad historical sense of the developmental science of individual potentials in the 20th century and then considering a request to arms against toxic stress circulated in 2012 by the American Academy of Pediatrics. Singh suggested that such post-genomic programs of early intervention, which represent emerging scientific theories of developmental malleability and organismic plasticity, establish meaningful ethical and social concerns. Accordingly, such programs stimulate social scientists to impel beyond critique and to

provide to new developmental models that deconstruct the long-standing divide between nature and nurture. The author concluded by expressing efforts that assert new terms of reference and, concurrently, new kinds of research engagements and inquiries that are not established upon, and are not attempts to determine, the nature-nurture discussion.

### **Nature and Nurture on the Intelligence and Specific Cognitive Abilities**

To further conversance concerning the nature and nurture of intelligence, Kan et al. (2013) examined how heritability coefficients diverge over particular cognitive abilities both empirically and theoretically. Data from 23 twin researches determined that in adult individuals, culture-loaded subtests lead to manifest more prominent heritability coefficients than do culture-reduced subtests and in individuals of both children and adults, a subtest's proportion of variance yielded with general intelligence is a purpose of its cultural load. These outcomes demand an account because they do not grasp mainstream theories of intelligence. The findings are logical with the hypothesis that heritability coefficients diverge across cognitive abilities as an effect of variances in the enrichment of genotype-environment covariance. The counterintuitive resolution that the most heritable abilities are the most culture-dependent abilities discards new light on the long-standing nature-nurture discussion of intelligence.

From these reviews, the researcher drew much of the methodology and processes in describing and presenting the development of musical abilities regarding two comparative views on the ability of music influenced by both science and experience: nature and nurture.

## **METHODOLOGY**

### **Research Design**

This study used a descriptive method to gather information about present existing conditions (Subong, Jr., 2005). Creswell (2009) defines descriptive research as involving the collection of data to respond to questions regarding the current situation of the subject of the study. In this research design, the library method (Sappe, 2020) and literature review (Tabuena, 2020) were utilized in gathering and synthesizing the articles and scientific papers related to the development of musical abilities.

### **Data Gathering Procedure**

In the process, as the limitation of this study, many articles and scientific papers were dated since the year 1950s as the references in Music biographies were introduced and developed approximately in the aforementioned year. In this condition, this research paper would also update the literature regarding the previously published articles and scientific papers. Based on the literature review, the researcher identified two comparative views on the development of musical abilities: nature and nurture. The researcher used four criteria in analyzing reviews such as cognitive development, intelligence, the relationship between nature and nurture, and musicality is nature, musical ability is nurtured.

### **Data Analysis**

The data were analyzed through synthesis information (Murray, 2006) known as explanatory synthesis, a written discussion that draws on one or more sources then divide the subject into its components parts and present them to the reader in a clear and orderly manner, through the used of four criteria in analyzing the reviews such as the cognitive development, intelligence, the relationship between nature and nurture, and musicality is nature, musical ability is nurtured.

This process also describes and explains previously reported significant results that examine the same phenomenon, known as meta-analysis (Zeng et al., 2014; Aburayya et al., 2020). Stanley (2001) noted that meta-analyses recognize the evaluation of the outcome of different data components and methodologies on the described results.

## RESULTS AND DISCUSSION

### Cognitive Development

The cognitive development theory of Piaget is of concern in association with the nature-nurture discussion. In principle, he affirmed that nature and nurture are both essential. He appropriated that nature represented a vital point in conceding why all children progress through the corresponding stages of cognitive development in a similar sequence. Based on his theory, innate, maturational developments within the brain account for the sequences of stages. He claimed that children in every culture expose the identical general pattern of cognitive development, and he associated that with innate factors. The pace with which children progress through the different stages depends on environmental factors. In an environment such as the school that aids learning, the children's cognitive development will benefit. Second, if there is a mismatch between a prevailing experience or occurrence and the child's stored knowledge in the form of schema, this constitutes a state of lack of balance or disequilibrium. This is a hard state that stimulates the child to obtain new learning to return to a state of equilibrium. Third, the idea of maturation rendering the stimulus for children to progress from one stage of cognitive development to the next signifies that most of them are unquestionably in a given stage. Piaget affirmed to some extent that the specific learning experiences of the children might impact how well they accomplished specific tasks.

### Annotation on the Cognitive Development

From this view, the cognitive development, by Piaget, nature, and nurture are both important; in the development of musical abilities, the development process: in developing the innate ability of the person, the enhancement of this ability, and further maturation of this ability, made a person holistic, functional, and meaningful. In the classroom, each child is made up of various idiosyncracies - talented and less talented, interested and less interested, and not the notion of "not talented," or "not interested, because each of them has their bits of intelligence, the multiple intelligences. Individual differences allow for nuances. As the child grows in learning, that is, he/she develops new insights, skills, attitudes, and interests - and the teacher must be cognizant of the various implications that deal with learning and child adolescent psychology.

Through this development, one of the learning theories in education, Gardner's Theory of Multiple Intelligences, gave way to the understanding of intelligence, in which, intelligence is often defined as our intellectual potential; something we are born with, something that can be measured, and a capacity that is difficult to change. Therefore, intelligence was considered as essentially biologically determined - the measure of intelligence held by an individual was already at birth and would endure the same throughout life, despite the existence of training (nature).

### Intelligence

In terms of intelligence, one study examined the DNA of fifty children with IQs of 160+ and associated it with the DNA of children with average IQs. It was observed that the gene IGF2R (insulin-like growth factor 2 receptor) on chromosome 6 was twice as prevalent in the children

with high IQs as in the others. The study implies that genes are a major influence or control on IQ. Yet, in the 1950s there was a variation from nature to the nurture side of the discussion. Advocates of this view established progressive arguments that intelligence was not genetically defined, but was due to the nature of an individual's existence, or experience. It was debated that intelligence was malleable in early childhood.

### **Annotation on the Intelligence**

Due to Gardner's Theory of Multiple Intelligences, he suggested that all people have different kinds of "intelligences." In order to capture the full range of abilities and talents that people possess, Gardner theorizes that people do not have just an intellectual potential, but possess multiple kinds of intelligence, including interpersonal, linguistic, musical, and spatial-visual intelligences. While a person might be expressly strong in a particular area, such as musical intelligence (an individual who has substantial intelligence musically are skilled at thinking in patterns, sounds, and rhythms; they have an influential appreciation for music and are oftentimes competent at musical performance and/or composition), he or she most possible holds an array of abilities in music. In this circumstance, the progress of musical abilities could be recognized as "nature" and "nurture." Nature, certainly attests that genetic factors play a substantial role in the development process; and nurture, which implies that all behavior is determined through the environment, what we discover is through observation, inquiries, and vicarious support and reinforcement.

### **The Relationship between Nature and Nurture**

Consequently, it has been maintained that the environment and heredity do not act separately from one another, but cooperate and interact. According to McLeod (2018), genes do not commonly interact with the environment, they are stimulated by this occurrence of experiences. This switching is produced by switchers on DNA. The bodies have hundreds of these, which switch genes on and off. Hence, genes are the ingredients for life (growth), and the environment (development) influences and affects how the genes will be exposed. Nevertheless, in recent years there has been an increasing awareness that the question of "how much" behavior or response is anticipated to heredity and "how much" to the environment may itself be an improper question. The "how much" question implies that psychological traits can all be represented numerically and that the problem can be determined quantitatively. In such, heritability statistics unveiled by behavioral genetic investigations have been probed as meaningless, primarily because biologists have ascertained that genes cannot determine or influence development independently of environmental factors; genetic and non-genetic circumstances always contribute to building traits. In this way, the reality is that nature and culture communicate and interact in a multitude of qualitative various ways (Gottlieb, 2007; Johnston & Edwards, 2002).

### **Musicality is Nature, Musical Ability is nurtured**

In the article by Wong (2014), she emphasized that 'musical ability' is settled by two factors: musicality and musical agility. In this case, genes determined the former, whereas the latter is more reliant on preparation, that is, training, and how much work one puts in, as it is a focus of learning how to manage the body. Singing or playing an instrument is extremely physical, in this case, musicians are athletes. That is why anyone who yearns to learn an instrument is urged to begin at a young age when the muscles of the body have not yet fully formed. In addition, she

presumed that “ability is 5% talent (nature) and 95% hard work (nature).” As with their complements in other walks of life, thriving musicians experience the corresponding traits: bucket loads of resilience, a fearless determination and confidence, relentless striving for excellence, and a genuine passion for their art, the music.

### **Annotation on the Connection between Nature and Nurture**

The nature versus nurture debate has raged since the beginning of psychology. This makes it very clear that it's both - not only in the sense that both nature and nurture contribute, but that they interact with each other. It is also evident that both nature and nurture reflect the trends in Contemporary Filipino Composers (Tabuena, 2018), according to biographical interviews of Samson (1976):

**Rodolfo C. de Leon**, composer and music teacher - Rodolfo de Leon's aunt, owned a complete band which played on all occasions in the town. This band originally belonged to the composer's maternal grandfather, the composer-conductor Domingo de la Cruz.

**Lukresia R. Kasilag** - as opened by Samson to Kasilag “Did you come from a musical family?” Kasilag said, “Yes. I would say so. My mother was a violinist and a violin teacher. She was also my first solfeggio teacher.”

**Alfredo Santos Buenaventura** - Samson asked, “What musical interests did you have as a child?” Buenaventura replied, “Well, as a small boy I was very much attracted to our town band. But my musical inclinations did not start from here. I was born into a very musical atmosphere. My father loved the violin and I still remember how he would play the violin and put me to sleep with it, you know, like a lullaby. My mother also often sang to me, but she was not a trained singer.” Aside from him, six other brothers became members of this town band in Sta. Maria, Bulacan.

**Jerry Dadap** - “An uncle of mine, Castor Amper, was considered the best trombone player in Asia. My own mother took music lessons from her father. She became a church singer who loved to sing even to us, her children.” Dadap's actual music training was given to him by his elder sister, Feri, the fifth offspring in the family.

**Felipe Padilla de Leon** - The de Leon has a family rondalla, the formation of which seems to have simply come naturally to them and which is a manifestation of the closeness of their family ties and also their fondness for musical activities.

**Lucio San Pedro** - “I recall how I would be responsible for pumping air in the organ while my grandfather played it, then when my grandfather died, I succeeded him as organist.”

### **CONCLUSION**

In this matter, when it comes to the ability in music, nature serves in tandem with nurture. The development of musical abilities is molded both by internal and external determinants. Musical talent carries nature and nurture (Henion, 2014). The result of the perception in the origins and appearance of both the intelligence and action dwells in the discernment of how hereditary and social factors are involved in the active and interactional processes that specify and direct its

development. The source and power of music could be some determined by association and/or by ancestry, in terms of genes; both scientific discipline and natural function impart to the development of musical abilities.

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