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SONATA NUMBER 2 FOR PIANO BY CARLOS CHÁVEZ A LOOK FROM THE THEORY OF MULTIPLE INTELLIGENCES

Jesus Vinaja Castillo

Autonomous University of Zacatecas, Mexico

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Abstract: The purpose of this work is to offer the performer-pianist, a strategy of approach to the Chaviano work *Sonata Number 2* for piano, the theory of multiple intelligence is linked to favor the work of learning and study of the piece, which, enables an optimal interpretation of the Second Sonata for piano by Carlos Chávez.

Keywords: Chaviano work, Multiple intelligence, Interpreter-pianist.

One of the enigmas that humanity has tried to unravel is how intelligence works. Until the end of the 19th century, intelligence was considered as one and was practically related to people in Western culture who were considered scholars or scientists, who held relevant positions in society (religious and political leaders, businessmen, judges), believed that these individuals had mental strength and there was no discrepancy in the explanation of intelligence, however, there was no reliable research to support these positions (Tejero, 2018). At the end of the 19th century and the beginning of the 20th century, due to the generalization of education in the world, it became important to assess the cognitive abilities of students, thus the Binet test to assess intelligence (1905) emerged, which basically focused on evaluate the logical, mathematical and linguistic capacities, to determine if an individual was intelligent or not. This position was debated by Howard Gardner in 1983, since he considered that there were human capacities, for example, comprehension, execution and musical creation that instruments such as the Binet questionnaire did not measure, and that intelligence was not considered but ability, Gardner proposed to modify and reformulate the approach, the concept of intelligence, develops his theory of Multiple Intelligences. The objective of the theory is to show how human beings are different and learn differently, since each one

dominates some capacities more than others, this demonstrates the errors of the educational systems that have tried to teach all students in a standard way without considering the particularities of each individual, even labeling an individual as fit and unfit to study (see Gardner, 2001b).

This scientist defined intelligence as "...the ability to solve problems, or to create products, that are valuable in one or more cultural environments..." (Moran, 2009). Gardner expanded the concept of intelligence to eight typologies: verbal-linguistic, logical-mathematical, visual-spatial, bodily-kinesthetic, musical, intrapersonal and interpersonal, and naturalistic.

Table Number 1

In this document we will deal with relating multiple intelligences to Carlos Chávez's piano work *Second Sonata*. Emphasis will be placed on the position of the performer-pianist, when approaching the musical work, taking into account the Multiple Intelligence (MI) of the author. Because it is a piece of music, one might think that the pianist would only use Musical Intelligence, but this is not the case "...the field of musical interpretation requires a set of intelligences that go beyond what is intrinsically musical..." (Moran, 2009). Gardner considers three factors: intelligence, domain, and field. Most domains require a collection of intelligences, and an intelligence can be developed in a rich variety of domains. Finally, skill in a field is qualified by people, institutions, that is, social structures, Gardner calls this field.

We will go on to link the theory of multiple intelligences with the Mexican composer Carlos Chávez. What context surrounded him? What paths did he follow to create original sound material? How did you manage to learn the compositional technique with a different angle or vision than the one you had in your time? How must the interpreter-

Intelligence	Characteristic
Verbal-Linguistic	Ability to use the language effectively, either orally or in writing
Mathematical logician	Ability to use numbers effectively and to reason appropriately, including logical problem solving and abstract thinking.
Visual-spatial	Ability to receive and represent the world mainly through images. It involves sensitivity to color, lines, space, and the relationships between elements.
Kinesthetic-bodily	Control of one's own body to express ideas and feelings and facility to use the hands in the creation or transformation of objects. It includes physical skills such as balance, dexterity, strength, flexibility or speed.
Musical	Ability to understand and develop musical techniques. It includes sensitivity to rhythm, pitch, melody, and timbre.
interpersonal	Ability to perceive and distinguish the moods, intentions, motivations and feelings of others. It includes sensitivity to facial expressions, voices, and gestures, as well as effective response to interpersonal cues.
intrapersonal	Self-awareness and the ability to act on that knowledge. It requires an accurate image of oneself. It includes the capacity for self-discipline, self-understanding and self-esteem.
Naturalist	Sensitivity towards natural phenomena. Facility to classify and recognize the species of flora and fauna of the environment.

Table Number 1 Gardner's eight intelligences (Balsera and Gallego, 2010, p. 17-18).

pianist who deals with the Chavia work use multiple intelligences?

LA DEUXIÈME

Sonate or *Sonata Number 2* for solo piano by Chávez, was composed in 1919-20, dedicated to the Polish virtuoso pianist Ignaz Friedman, he was impressed with the work and convinced the German publisher Bote & Bock to publish it, a situation that happened in 1923 (see Lifchitz in Chávez, 1991, p.36). The following table summarizes the times of the *Sonata*:

Table Number 2

This is a work from Chávez's first stage as a composer, a creative phase that the researcher Herbert Weinstock called "Juvenilia" which lasted until 1921 and is characterized by: "... [The works] logically lacked greater experience and depth, unfolding within a semi-classical, semi-romantic general trend, and with a Europeanizing orientation in its melodic line and harmonic realization; but they offer some qualities: vitality, formal sense and bill solidity..." (García, 1960, p.13). In the case of this sonata, the trend is post-romantic.

Knowing and exploring more of Chávez's music allows his performers-pianists to develop musical intelligence, since the performer will encounter a sound aesthetic that is difficult to appreciate at first hearing, his language is elaborated in great detail and he seeks his own voice with respect to of the art of his time, which still seems modern to us today. As this Mexican musician explains the work of each composer, it is a metamorphosis of what the creator perceives from the outside in his own language (filtering those experiences), so every piece is a narration of an experience "...A composer turns everything into music that which he absorbs from the outside, and all that he is congenitally; musically describes its present moment, so that, in reality, all music is autobiographical..." (Chávez, 1964,

p. 9). Verbal-linguistic intelligence is evident in this composer, as we perceive in this phrase belonging to his professorship taught at Harvard that shows his musical thought, it is also notorious in Chávez, manifested in his journalistic writings, where he reflects on topics such as: new music with a modernist approach, Mexican national music, the national symphony orchestra, the national conservatory, articles on great composers such as Beethoven, Rameau, Gluck, Piccini, Blas Galindo, on architecture and many more topics, which is testimony to his discursive capacity, In the same way, he demonstrates a communicative ability in his compositional language through works such as: symphonies, ballets, chamber music, sonatas.

One of the aspects that must be highlighted about Carlos Chávez is his reflective and investigative nature, which resulted in a tendency to self-instructed knowledge in search of mastery of creative processes in sound art and subsequent originality "... Chávez's spirit was it did not go well with the directives of a teacher, however broad and comprehensive. An eminently analytical and critical spirit, self-taught by nature, endowed with great confidence in his own strength, he dedicated himself to studying harmony, counterpoint, composition and orchestration..." (García, 1960, p.12). Here we find two aspects of his intelligence on the one hand his logical-mathematical intelligence since he was very analytical and preferred to learn by analyzing the works of outstanding composers to know their procedures and seek to write differently "... we must know well the particular techniques of all the great masters ; in the first place, so that they teach us and, later, to systematically avoid them..." (Chávez, 1979, p.28), and their intrapersonal intelligence since assuming their learning without a teacher demonstrates self-motivation to follow their ideals and persist

Movement	Tempo	Speed	number of measures
I	<i>Allegro Painful</i>	♩ = 56	240
		♩ = 100	
II	<i>Walking</i>	♩ = 72	138
III	<i>very restless</i>	♩ = 100	233
			611

Table Number 2 General Data of Sonata Number 2

Lento energico ♩ = 80

poco ritenuto *stretto*

f legato e preciso

Example Number 1 *Polygons of the Seven pieces for piano* (Chávez, 1961, p. 2).

105 *Con serenita, ma dolente* (♩ = 69)

p sempre legato, il tempo senza rigore

Example Number 2 *Sonata Number 2* (Chávez, 1991, p.8).

90 *poco rall.* - - - - -

netto

Example Number 3 (Chavez, 1991, p.7).

168 M.D. M.D.

M.I. M.I.

Example Number 4 (Chavez, 1991, p.12)

in their search for originality, a developed self-esteem to trust in their abilities to create their own musical style, seeking to speak as Americans and Mexicans, investigating how to be avant-garde and compose differently from the Eurocentric creation and self-understanding of their needs and creative processes.

my stay in Europe convinced me that we had to do what was ours —he writes—, build our scene and act in it, do what one could, a lot or a little, good or bad, but our own and a little different

(Carmona, 1994).

The time that this character had to live was one of great changes, a revolutionary armed movement that modified the political and social structure in Mexican society which had lived through a dictatorial regime, which caused a delay in cultural and artistic development, and once the conflict of the revolution ended, it catapulted the ideals of change and progress. Chávez analyzed works by the great masters of classical music and of his own free will decided to move away from traditional aesthetics to make a leap to the avant-garde. Chavian music cannot be approached according to a standardization, for example, classical or traditional romantic, because the composer's approach was precisely to use a different sonority, however, in terms of structure, it retains traditional forms, for example: *preludes*, *studies*, *sonatas*, in which he escapes from tonality, in this sense in the "10 *preludes*" he resorts to the Greek modes, or in *Sonata Number 2* he uses a dense and often dissonant harmony.

Currently, new theories consider that there is a musical intelligence, which is an independent capacity from others. However, it is used in conjunction with other intelligences as Gardner explains:

the field of musical intelligence requires intelligences that go beyond music (for

example, bodily-kinesthetic intelligence), just as musical intelligence can be extended to fields that transcend music in a strict sense (such as dance or music). advertising).

(Gardner, 2001a, p.9).

Thus we find a relationship between the musical intelligence of the composer and linguistic intelligence, in the sense that the art of sounds is a language and has its own notation on paper, "...in the same way that a poet writes a poem using words, the composer builds his melody with musical notes, finally producing a harmonic creation..." (Arias, Guzmán and Payán, 1999), these processes require a clear use of the resources of language to give coherence to the discourse. In turn, the pianist performer in this case requires a reading comprehension skill of the musical symbols to be able to give life to the musical discourse.

In addition to being a composer, Chávez was a high-level pianist, this is the reason why his production for piano is approximately 30% of the total of his music (see Parker, 2002, p. 61) in which he exploits all the resources of the instrument, practically the entire register (from high to low), in his pieces a varied articulation is observed, the frequent use of the percussive resources of the piano and the strong nuances which causes a sound color that is often dense, dry and large, although given the use of polyphony there is differentiation of melodic lines and differentiation of nuances according to the sound planes "...Chavez's music has something of the barbaric rhythm and the taste for the use of dissonance without preparation, as heard in the first Stravinsky..." (Moreno, 1994, p.26).

We find in his works dissonance, chromatism and polyrhythm. His music frequently accumulates harmonic and rhythmic tension. Another aspect that we find in his compositions is the high-level technical complexity for the performer "...it is an

unusual virtuosity, beyond the mere display of digital skills...”¹ (Alcaraz in Rodríguez, 1999, p.39). If we focus on the *Deuxième Sonate*, the sonority is generally strong, the marking of tempos, meter and speed is constantly changed. The work covers the seven octaves of the piano, polyphony and polyrhythm are used throughout the piece. *Sonata Number 2* was dedicated to a virtuoso pianist and because of this there are many technically complex passages.

His musical intelligence is characterized by rhythmic contrast, search for freedom of the bar line, changes in meter to vary accentuation, harmonic density and use of polyphony, dissonance and intense expression, as can be seen in the *Sonata Number 2* or the *Seven Piano Pieces*.

Example Number 1 and 2

Regarding bodily-kinesthetic competence, which is the ability to solve problems, for example, with the mouth, with the hand, or with the whole body, there is a close relationship with musical interpretation, since the pianist needs to perform a series of specific movements to achieve an execution, in this regard Gardner explains:

Many composers, including Sessions, have emphasized the intimate links between music and body or gesture language...younger children naturally associate music with body movement, and in fact it is impossible for them sing without maintaining any physical activity that accompanies the song; Almost all explanations of the evolution of music relate it intimately to the primordial dance.

(Gardner, 2001a, p.104).

Instrumentalists like pianists perform a series of movements, in which they have to solve parts of great difficulty. The pianist makes contact with the keyboard with his fingers, however, the whole body intervenes: the weight of the arm, flexibility of the wrist,

¹ Notes on the piano work of Carlos Chávez by José Antonio Alcaraz on the album by María Teresa Rodríguez: *Carlos Chávez complete work for piano* .

tension and distension of the muscles and joints, these movements must be adequate to achieve the desired effect.

The interpreter of Chavian music will find a marked contrast in many aspects such as the varied articulation, texture, rhythm and speed that is modified on a recurring basis, he will have to go through a significant number of sections that cover both ends of the keyboard., which will require a great technical development. Spatial intelligence encompasses abilities such as the ability to “... evoke mental imagery and then transform it... orientation in various locations ranging from rooms to oceans...” (Gardner, 2001a, p. 143). The pianist must orient himself in the space of the keyboard, be sensitive, evoke images or experiences and transform them into attacks that represent said memories, in addition, he will have to be able to appreciate and analyze the structure of a piece.

The form in Chavian music must not be approached from the point of view of the tradition of the great masters such as Mozart, Beethoven or Chopin, since Chávez first wanted to know the existing procedures and then free himself from the canons to seek originality “...Chavez uses classical schemes... what is strictly necessary and useful, and rejects what tastes like a formula...” (García, 1960, p. 195), the aspects that it preserves of the forms, for example, *sonata* is the balance in his elements within the work, there is a constant experimentation of variation in the way of presenting his materials, this Mexican composer frequently surprises us. The performer-pianist who approaches his work will need to review the organization of his form, which in some cases is angular and contains pronounced rhythmic, melodic, articulation, agogic and color contrast. If we talk about the *second* piano sonata, it presents angular sections in its compositional structure,

the sound is romantic, however, given the use of polyphony, there is a certain baroque style. The recurrent dissonance, untimely contrasts of aggressiveness with others of melancholy.

In the case of intelligences, called by Gardner as “personal”, these have an emotional implication in their characteristics and since music contains the communication of feelings, creators in general have them widely developed.

Carlos Chávez on many occasions assumed the task of working on a work suggested or requested by another person, for example, a ballet or symphony for which he had to work according to said request, understanding the intentions of the interested party, on the other hand, he had to stand up agreement with other artists: librettists, choreographers, dancers to unify the overall artistic concept of a creation, such as his HP ballet.

In many cases, Chávez played the piano or took the baton for the staging of his works, he must have used his ability to infect the musicians and artists in his charge to achieve the best of his performance, so it can be noted. He had highly developed interpersonal intelligence.

As interpreters of the character in question, we must discover the intentions of the composer himself in his works, keep in mind his detachment from the usual procedures and search for the transformation of forms, for example, *symphony* and *sonata*.

On the other hand, this composer had a clear conception of himself, self-knowledge, security of what he wanted in his inclinations to create, which shows his developed intrapersonal intelligence. An example of this clarity and security can be seen in the aesthetic orientation of the Mexican musician, where he uses elements of mestizo or pre-Hispanic folklore, a product of the exposure he had to traditional art in his childhood, finding a way not yet exploited in his time. This idea is the

result of the musical memory of Chávez that was nourished by the vestiges that remained of the musical culture of our ancestors, “... Carlos Chávez from a very young age became familiar with the native music of Mexico during frequent family stays in Tlaxcala, where the popular musical manifestations then had indigenous characteristics...” (Carmona, 1994, p.11).

This allows us to understand where the accumulation of ideas came from addressing the folkloric theme, was impregnated with these materials and transformed them to represent his vision of what is Mexican in music. The Chavian music with an Indian focus in a part of his production, was first very clear and then only suggested, until it was eliminated from its expression towards new forms.

If we apply multiple intelligences to the *Sonata Number 2* of Chávez we can obtain paths that help in the task of decoding and execution attached to the Chavian ideal. Bodily-kinesthetic intelligence in this case specifically refers to the technique of the pianist, being aware of how we work to press the keys in order to achieve the desired effect will allow us to express ourselves better musically.

One of the most technically demanding passages in the *sonata* is between measures 81-92 in the first beat *Allegro Doloroso*, in which the pianist's left hand must execute a melodic line in the bass based on half notes, but at the same time perform an arpeggio of eight sixteenth notes at a speed of one hundred the half note $\downarrow = 100$, while the right hand carries the main melody in octaves. The player must use a flexible left wrist, imitating the pattern of the arpeggio (rotating it first to the right and then to the left), and resting the fifth finger on each bass.

Example Number 3

Another example that we can mention

regarding the resolution of a passage that requires bodily-kinesthetic intelligence is found in the first beat bars 168-169, in which the distribution of the hands has to be different from how they graphically appear in the pattern, in this case we must distribute the chords and the melodic line between the hands. In measure 168 the Db2² of the bass along with the Db3 of the upper chord can be played with the left hand and the Ebb3Gb3Db4 with the right and the melodic line in quarter notes with the left; in the measure the Ab3 and Bbb3 of the upper chord, as well as the Db3 of the bass can be played with the left hand and the Db4, Ab4 and Db5 with the right, shortly after the upper chord is held down with the right and the rest of the bass with the left only.

Example Number 4

Regarding the use of spatial intelligence, the performer-pianist uses it constantly, since he must move through the geography of the keyboard, however, the greater the distances between the passages, the more difficult a work increases, in the *Duxième Sonate* we can cite as an example the beginning of the *Molto inquieto*, in which the movements in both hands go from end to end and is fast both due to time and the need to play the rhythmic figures. In the fragment that appears below, the upper chords of both hands must be sustained by the right pedal to move the hands to the ascending figures in eighth notes, given the haste with which the attacks are made, they require an exact spatial sense to play the note indicated.

Example Number 5

In Chavian music, in relation to the rhythmic element, it is of a complex nature. The musician will have to use his logical-mathematical intelligence to resolve the passages of the work, we can mention the one found in time I Allegro Doloroso in measure

2 Note: Sounds are numbered according to the number of times they appear on the keyboard to form an octave from left to right. 7 letters of the alphabet are used to represent the sounds Do, Re, Mi, Fa, Sol, La, Si, this way: C, D, E, F, G, A, B. thus the note C appears 8 times in the keyboard C1 to C8 forming seven octaves (see Kotska and Pane, 1989).

121 where the mathematical capacity will allow us to distribute the rhythmic figurations to achieve accuracy in its duration and speed as shown in the following example where a subdivision is applied:

Example Number 6

CONCLUSION

As has been argued in this document, musical intelligence does not act alone, it is required to put it to work with other intelligences, Gardner's purpose was not to dissociate human intelligence, but to categorize its edges, each individual has a greater tendency to some (s) capacity (is) and acts in some field. To interpret a musical work, of course, a developed musical intelligence is required, however, the other capacities of multiple intelligence are also required.

Sonata Number 2 for piano is of a high technical-musical level due to the accumulation of contrasts in: meter, articulation, polyrhythm, containing polyphony and dissonance, virtuosic passages in which practically all the octaves of the piano are exploited. It was dedicated to such a virtuoso pianist, it is a piece for an experienced performer, even though it has been recorded by Mexican and foreign pianists, it is not so regularly exhibited on stage, probably the pianists are more accustomed to the wide nineteenth-century repertoire and less to the repertoire of the 20th and 21st century. Carlos Chávez is recognized in the world through his works such as: the *Indian Symphony* and the *toccata for percussion*, although it has a wide production, in which the piano occupies a significant amount of it, given the transcendence of the Mexican composer, all his creation is considered to be more played in public. The *Sonata Number 2* for piano is for concert halls, and to a lesser extent



Example Number 5 Sonata Number 2 Mov. III *Molto Inquieto* (Chávez, 1991, p.22).



Example Number 6 Sonata Number 2 compass 121 (Chavez, 1991, p.9).

for electronic media, it is necessary that the interpreters like its content and musical aesthetics, since they are its spokespersons, it depends on this to arouse interest and appreciation of the public about the musical production of the great composer in question.

The purpose of this document is to contribute to a greater interest in the repertoire of Carlos Chávez, for which multiple intelligences were interwoven in relation to the composer and the musical piece, as an alternative to support the performer-pianist in the approach, study and interpretation of the work examined in this document.

The performer-pianist must know the musical intelligence of the author, developed in the compositional language of the piece *Sonata Number 2* for piano, this is achieved in the first place, through the score using the logical-mathematical intelligence in relation to the musical, analyzing the piece from various perspectives: harmonic, melodic, technical; In addition, it requires the use of verbal-linguistic intelligence by consulting the composer's trajectory, the compositional stage to which the work belongs, since each author has several creative phases, the pianist must also investigate the characteristics of his musical language, style, creative purposes, through documents written by the author and his researchers, this influences the performer to optimize his execution.

Carlos Chávez left a number of writings as testimony to his approach, the search for his own language, which did not sound like nineteenth-century creation, he assumed an avant-garde posture, as can be seen in his musical work, at one stage of his creation he developed what Mexican national, which is evidenced for example in his vision of the Indian sonority. It is known that the piano music of the academic repertoire that is most performed is from the baroque, classical, romantic periods, and less so from

the 20th and 21st centuries. The performer-pianist who approaches the *Sonata Number 2* for piano, requires, in addition to using his musical intelligence, to employ interpersonal intelligence, to empathize with Chávez's perspective of breaking nineteenth-century molds and opening his appreciation of a different and modern repertoire, in this regard it is important say that the author manifests different emotional states in the *sonata* by means of *tempo indications* such as: *allegro doloroso*, *agitato*, *disperato*, *con serenita ma dolente*, *tranquil*, calm, which together with the sound material help the interpreter in the use of his intelligence intrapersonal to improve their expressive capacity. *Sonata Number 2* for piano requires a high degree of development of bodily-kinesthetic and visual-spatial intelligence, due to abundant passages of virtuosity, the pianist needs to use these intelligences to solve technical difficulties and perform effectively.

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