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HISTORY OF THE PIANO AND PIANISTS: PRE-SCHOOLS SCIENTIFIC AND SCIENTIFIC

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SUMMARY

How can we bring comprehensiveness to pianistic education or training so that teachers, students and musician-performers feel safer playing with more performing authority? This is the problem or key question that guided this work. Furthermore, we based our study on the analytical-descriptive method based on the Bibliographic Review. In this scientific article, we will comment on the different pedagogical-pianistic approaches, to mention the main ones: finger school; anatomical-physiological school and psychomotor school. We have a multitude of currents that convey new trends, theories and ideas regarding various topics pertinent to pianistic practice, that is to say: pianistic movements, technical exercises, use of the pedal, finger articulation, application of arm weight, touch, etc. **Key words:**History of the piano and pianists. Pianistic education. Pianistic schools. Piano pedagogy. Pre-scientific and scientific schools.

ABSTRACT

How can we bring comprehensiveness to pianistic education or training so that teachers, students, and musician-performers feel safer playing with more performative authority? Here is the problem-question or key-question that guided this work. Furthermore, we base our study on the analytical-descriptive method based on the Literature Review. In this scientific article, we will comment on the different pedagogical-piano approaches, to mention the main ones: school of fingers; anatomicalphysiological school and psychomotor school. We have plenty of currents that conveyed new trends, theories, and ideas about various topics pertinent to piano practice, namely: piano movements, technical exercises, use of the pedal, articulation of the fingers, application of the weight of the arm, touch etc.

Keywords: History of the piano and pianists. Piano education. Piano schools. Pedagogy of the piano. Pre-scientific and scientific schools.

1 INTRODUCTION – "HISTORY OF THE PIANO" OR "HISTORY AND PIANO": PROBLEM AND NOMENCLATURE

As we extract from Signorelli (2019), we have that:

> As of March 2016, we began teaching the optional theoretical subject "History of the piano and pianists: technical-interpretive trends and pedagogical approaches" at the Faculdade de Música do Espírito Santo (FAMES). This discipline's main scope is to equip students with a technical-musical arsenal based on

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> historical subsidies that provide students with the acquisition of new motor skills and the enhancement of their capabilities in solving piano problems. We thought a lot about the title to be given to the aforementioned discipline. Modern theories suggested that we call the discipline simply “Piano and pianists: history, technical-interpretive trends and pedagogical approaches”, since talking about “History of the piano” would be presented as something very restrictive in tone or even conservative; while the title “Piano and pianists', more comprehensive, would be responsible for the dialogue between two autonomous interfaces with clear points of contact, thus placing the elements on a broader scale. We are not oblivious to the suggestions of academic modernity; however, we are not subjugated to it. In this way, our discipline has the ability to restore respect for musical tradition, which, often forgotten and despised in our music academies, can greatly contribute to the formation of conscious and mature performers in technical-musical terms. Furthermore, we would like to record the unique teaching we received from the great Brazilian pianist Nelson Freire. Upon learning that we were preparing Grieg's Concerto for piano and orchestra, one of the Brazilian master's first instructions was for us to listen to the historic recording of his musical “grandfather”, Arthur de Greef, a disciple of Liszt and a personal friend of Grieg. And he added: “tradition has a lot to teach us” (expressing his belief in tradition to enable the instrumentalist to offer his audience a genuine, valid and responsible interpretation). Therefore, we have seen that the world's great piano interpreters do not have the attitude of distancing themselves from musical tradition. Quite the contrary, they use tradition as a tool, model and source of inspiration for their interpretations. We can also say the same thing elsewhere about the legendary Argentine pianist Martha Argerich, a personal friend of the great Brazilian pianist Nelson Freire, with whom we also keep in touch. (SIGNORELLI, 2019, p. 1 and 2).

And the same author continues:

> We could, however, mention a series of other great names (with whom we take classes) who also consider tradition as an important basis of reference for interpretation, such as: Luiz De Moura Castro (disciple of Guilherme Fontainha, Arnaldo Estrella and Lily Kraus), Mordehay Simoni (disciple of Estefan Askenase, Arturo Benedetti Michelangeli, Arthur Rubinstein and Bruno Seidlhofer), Myrian Dauelsberg (disciple of Liddy Chiafarelli, Arnaldo Estrella, Carlo Zecchi, Vlado Perlemuter and Bruno Seidlhofer), Eny Da Rocha (disciple of Marguerite Long and Lucette Descaves), Luiz Senise (disciple of Elzira Amábile, Arnaldo Estrella, Magda Tagliaferro, Pierre Sancan and Nikita Magaloff), José Eduardo Martins (disciple of Joseph Kliass, Marguerite Long, Jacques Février, Pierre Sancan and Jean Doyen), Cristina Ortiz (disciple of Magda Tagliaferro and Rudolf Serkin), Aleida Schweitzer (disciple of Jaap Callenbach and Jan Ekier), Miguel Angel Scebba (disciple of Vincenzo Scaramuzza, Vladimir Nielsen and Vladimir Natanson), Lícia Lucas (disciple of Homero De Magalhães, Vincenzo Vitalle and Denise Lassimone), Gilberto Tinetti (disciple of Alfred Cortot, Magda Tagliaferro and Friedrich Wührer), Paul Badura-Skoda (disciple of Edwin Fischer), Carmen Adnet-Graf (disciple of Dulce De Saules and Jozéf Turczynski, personal friend of Paderewski and editor of Frédéric Chopin's Piano Works), Leon Whitesel (disciple of Isabelle Vengerova), Eugene Pridonoff (disciple of Lilian Steuber, Rudof Serkin and Mieczyslaw Horszowski), Ruth Slenczysnka-Kerr (disciple of Sergei Rachmaninoff, Arthur Schnabel, Josef Hofmann, Egon Petri, Alfred Cortot, Marguerite Long and Wilhelm Backhaus), Maria Gambarian (disciple of Konstantin Ygumnov and Heinrich Neuhaus), among many others. So our discipline wants to bring to the academic world the proper alignment of technical-musical ideas with the great piano masters. We consider that we cannot form a generation of pianists uncommitted to technical excellence, mastery of the pianistic apparatus and fidelity to the musical content expressed in the text written by the composer in

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> your sheet music. In effect, we argue that the role of the educator is to respect tradition and pass it on to his disciples, continuing the flow of history without compromising the advent of new ideas or creativity. So the interpreter will look for the "*modus faciendI*" of a certain musical idea shaped by the composer in the score, but without being restricted or rigid to it under penalty of seeing his artistic freedom restricted. From another perspective, it is not a good idea for the interpreter to transform the conception of the Work at will, altering the traditional way of playing it at his own discretion and without due justification. (SIGNORELLI, 2019, p. 2).

Still according to Signorelli (2019), those who intend to take non-trivial, progressive, non-traditional, original and "innovative" paths must take due care in making their interpretative decisions based on consistent bases. For Signorelli (2019): "Otherwise, such an act would be, at the very least, irresponsible, mistaken and incorrect from a technical-interpretative point of view (since it is totally disconnected with the Style and Character of the Piece to be performed)." (SIGNORELLI, 2019, p. 3). In this sense, Signorelli (2019) highlights that:

> Furthermore, it would constitute a distortion of the Musical Text and an attack on the essence of the composer's musical message, compromising both artistic-intellectual honesty and the seriousness of pianism in its genuine authenticity (the execution would be nothing more than a bluff, a typical work of charlatanism that falsifies the interpretation – "*fake*"). In view of the above, because we understand that "fads" and "modern theories" can pass (we are not saying that they will necessarily pass, but just questioning and suggesting such a possibility), we decided to base our discipline on the most solid and lasting foundations of musical tradition. We do this because one of the functions of our discipline is precisely to rescue this tradition (so distorted, disrespected and misunderstood especially in academic circles). Nevertheless, tradition offers us more than enough ammunition for the exact understanding of a musical Work (both in relation to Style and Character) undermining any chance of caricatured interpretations, as well as reproductions (or repetitions) of existing recordings. In this sense, we understand that it is important for the instrumentalist, above all, to know how to read what was written by the composer, so that he does not fall into creating "pastiches" (even if they are not crude). In effect, the soul of the Piece is between the lines of the notes (letters in the Musical Text), as well as in its groups and designs (syllables and words in the Musical Text). (SIGNORELLI, 2019, p. 2 and 3).

The interpretative decision mentioned above could even be, depending on the case, considered "vulgar", "mundane" or "common"[1](there is no need to talk, at this point, about labeling, standardization or stereotyping processes); or even deprived, lacking or lacking a consistent, clear, verifiable, plausible, defensible, substantiated, substantiated and verifiable aesthetic-musical conception.

According to Signorelli (2019), in an emblematic text, knowing how to read the Musical Text is not a matter of "purism", "preciousness", "archaism" or "conservatism" (or, even,

[1]The reference in quotation marks is due to the use of words in their common senses and currently accepted or recognized in common sense, popular imagination or collective unconscious.

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"conservative" view - as some want); but only of respect and clarity regarding the Composer's message (correct interpretations, without mistakes, safe, legitimate, genuine, musically and intellectually honest, convinced and convincing, with truth, authentic). In the meantime, Signorelli (2019) highlights that:

> According to Lucas (2010), the *modern piano school* (initiated by Busoni at the turn of the 19th century to the 20th century and later unraveled by: Hofmann, Rachmaninoff, Schnabel, Michelangeli, Egon Petri and Gieseking, among others), in contrast to the romantic school of piano (marked by the performer's subjectivism), values , above all, by the rational observance of the composer's intentions in their constructive sense and essence in terms of emotional effects to be generated in the public. Therefore, the intellectual and objective search for the subjectivity of the composer (and not the performer) constitutes the supreme end of *modern piano school*, which prevails to this day. (SIGNORELLI, 2019, p. 5).

This time, Signorelli (2019) states that "creative interpretations" are not admitted, which are nothing more than a disservice to historically accumulated musical culture, as well as pure subjectivism (or, sometimes, a product of mere personal vanity) revealing artistic vicissitudes and dishonesty. -intellectuals who border on charlatanism or scoundrels.

Often, they are stereotypical, poorly finished and caricatured performances that seek to escape the trivial through diametrically opposed obviousness, turning the interpretative elements upside down. As a result, we find a predictable, amateurish, boring, academic and scholastic presentation.

The aforementioned author continues his exposition claiming that his discipline aims to enable students to escape these traps, which are the broadest path (that is, the easiest, a priori, hasty, incipient, immature, naive and obvious shortcut). Such instrumental practice can vulgarize or trivialize the interpretation, making music making common, offending the artistic dignity that those who try to play well must have.

Thus, the aforementioned author considers it nonsense (and a contradiction) to broaden the scope of knowledge, deviating from the main focus, which is making music (that is, piano performance).

In his view, teaching must be allied and aligned with practice, under penalty of inexorable contradiction and deviation of function. Furthermore, for Signorelli (2019), there is no point in expanding the spectrum of knowledge if such a theoretical framework does not result in effective growth in technical-pianistic capacity, as well as sobriety or musical seriousness.

For this author, it would be mere formalism or terminological purism; that is to say, innovation for innovation's sake (or differentiation for mere differentiation's sake, as an end in itself

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same) without due epistemological and academic rigor. In this spectrum, Signorelli (2019) considers:

> We understand that the Academy is a place conducive to change and the vanguard. However, the Academy also has an important role in conserving and respecting historically inherited traditions. Regarding the term empowerment, Herriger (1997) highlights that the Empowerment Tradition (*Empowerment Tradition*) has its roots in the Protestant Reformation, initiated by Luther in the 17th century. XVI, in Europe – in a leading movement in the fight for social justice. In such a way that the theme of empowerment, as social emancipation, *no* constitutes a novelty. According to Freire (2011), individual empowerment is self-emancipation, based on an individualistic understanding of empowerment, which emphasizes the psychosocial dimension. Thus, empowerment involves a process of awareness and the transition from naive thinking to critical awareness. According to Freire (1979), awareness is a process of knowledge that takes place in the dialectical relationship between man and the world, in an act of action-reflection; that is, it happens in practice. Raising awareness does not mean manipulating, leading others to think as I think; raising awareness is "taking possession of reality", constituting the most critical view possible of reality; It involves moving away from reality in order to objectify it in your relationships. Still according to Freire (1979), to develop the awareness process, dialogue and dialogic education are essential. Dialogical education is not a teaching technique, it is an epistemological stance. Furthermore, the Academy cannot miseducate; but to educate and transmit to future generations the cultural baggage built by humanity over the years. For us, the Academy's role is to add value and provide information; and do not subtract or omit them. (SIGNORELLI, 2019, p. 6 and 7).

The same author explains that, otherwise, the social function of the Academy will be it was impoverished, overshadowed and belittled (or even canceled and annulled). Therefore, the attempt to produce new knowledge without observing the information accumulated over generations would be, at the very least, an innocuous, fruitless, ineffective, stupid, foolish, childish, naive and immature act.

In truth, it would appear to be the historical moment in which society is submerged today, marked by the following characteristics: obscurantism and regression; use of masks making it impossible for the truth to be told; superficial, artificial and distant relationships (social isolation); behavioral falsehood in social relationships; use of masks as gags obstructing people's real voices; use of sanitizers with the intention of, allegedly, purifying society of what is supposedly considered politically incorrect and noisy to the ears.

In this supplement, the author in focus mentions that he could cite a host of great artists and teachers who defend adherence to tradition as a way of legitimizing interpretation while respecting composers (as well as the History of Music). Following Signorelli (2019), we read that:

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> Given the reasons mentioned above, despite not being oblivious or resistant to academic modernities, we purposely decided not to "update" the name of our discipline precisely in honor of the traditional basic principles that guide music making and that must not be broken (under penalty of ruin of the piano building). (SIGNORELLI, 2019, p. 7).

In view of the above, like Signorelli (2019), we chose not to give in to the easy, temporary, populist, demagogue, dominant, oppressive, violent, anti-democratic, imposing, totalitarian, retrograde, cachectic, creativity-ravaging, deconstructive, iconoclastic, discourse. restrictive of the space allocated to freedoms and individual or subjective rights, denialist, arrogant, hostile, prejudiced, obscurantist, fragmentary, discriminatory and separatist (represented by cliché, cliché, falsification of creative potential, stereotyping, reverse standardization, by obtuse massification and the formation of caricatured commonplaces) to the detriment of centuries-old historical and socio-cultural structures that cannot collapse due to an epistemological stance characterized, in our way of seeing, by the irresponsible breaking of naturally and culturally consecrated paradigms.

So, for Signorelli (2019), such an epistemological choice could end up disavowing the assimilated or acquired Musical Tradition itself, as well as the historically accumulated good customs.

In fact, the aforementioned author asserts that the deconstruction of monuments built for reasonable and justifiable reasons over the centuries appears to be an unreasonable, unfounded, absurd, unbalanced and extremist attitude. A true disgrace, the result of radicalism and folly in his point of view.

2 THEORETICAL FRAMEWORK

Like Signorelli (2019), in this work, we will use, as the main guiding theme, the book "A*piano genealogy*", by pianist and author Lícia Lucas, published in its first edition in 2010 by the publisher Muiraquitã in the city of Niterói-RJ.

In the same way as Signorelli (2019), in this research we will also use the set of literature of manuals aimed at analyzing technical-interpretive aspects in the piano field, in their respective chapters consistent with the theme at hand. Like Signorelli (2019), we will use the quotes of authors who speak with the same language, timbre and chromatic tonality in relation to the aforementioned author; which are, for example:

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Schonberg (1960), Schultz (1936), Kochevitsky (1967), Kaemper (1968), Kaplan (1987), Richerme (1996), Bruser (1997), Mark (1999), Chiantore (2001), Leite (2001), Rattalino (2005), Hertel (2006), Gerig (2007), among others.

We highlight, in particular, the contribution of the following authors: Kochevitsky (1967), Kaemper (1968), Richerme (1996) and Hertel (2006). Furthermore, the authors will appear in subsequent lines. In this context, let us review the various Pre-scientific and Scientific Schools of the pianistic tradition.

2.1 PRE-SCIENTIFIC AND SCIENTIFIC SCHOOLS: BRIEF HISTORICAL DIGRESSION

Thus, in agreement with Signorelli (2019), the evolution of pianistic technique was described by several historians, including Gerd Kaemper and George Kochevitsky. Similarly, we will leave to comment on the different pedagogical approaches, to mention the main ones: finger school (or pre-scientific or empirical); anatomical-physiological school (or natural or arm weight) and psychomotor school (or psychotechnical, psychophysical, kinesthetic, kinesthetic-motor or proprioceptive).

Alongside the development and branching of pianistic schools, we have, as a corollary or fruit of this evolution, a plethora of currents that conveyed new trends, theories and ideas regarding various themes pertinent to pianistic practice, that is to say: pianistic movements, technical exercises , use of the pedal, finger articulation, application of arm weight, touch, etc.

As we mentioned before, we will use as references the works of Schultz (1936), Schonberg (1960), Kochevitsky (1967), Mark (1999), Kaplan (1987), Richerme (1996), Leite (2001), Hertel (2006), Gerig (2007), Lucas (2010), among others.

The aforementioned authors considered historical, technical and aesthetic contents that permeated the formation of different eras and schools. In effect, each piano approach has its own basis and its respective representatives. Therefore, the investigation of these fundamentals allows us to trace a line of continuous evolution and constant development of the History of the Piano.

It is well-known and well-known that the clavichord (derived from the Latin "*clavis*"= key and "*chorda*"=string) is the predecessor of the piano, as we have already mentioned

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based on another scientific article. It turns out that, in the clavichord, the strings were hammered using a metal plate; whereas, on the harpsichord, the strings were pinched or pinched by a plectrum.

According to Locard (1948, *apud* Signorelli, 2019), the harpsichord was an instrument with strings plucked with plectrums. Its appearance was more robust, its sound was rich and varied, providing precise and exact attacks. It was intended for larger environments, due to its metallic and vibrant sound, more powerful and intense, voluminous and bright, dry and rigid, shorter.

According to the aforementioned author (*apud* Signorelli, 2019), the harpsichord developed and perfected between the years 1500 and 1750. In turn, the clavichord, derived from the Latin "*clavis*" (key) and "*chorda*" (string), was an instrument with strings struck with tangents. In this light, Signorelli (2019) highlights that:

> It was intended for smaller rooms and more intimate environments because it was capable of expressing in rich detail the most subtle nuances and colors (or hues), endowed with greater expressiveness and a more comprehensive timbral palette, with a greater variety of dynamics and touches, more delicacy, touch-sensitive keyboard, softer and legato sound, longer. According to Casella (1936), there are reports that Carl Philipp Emanuel Bach was capable of producing "*vibrato*", "*balancing*", "*tremolo*" or "*baby*" to the clavichord (through direct attack with the finger on the touch-sensitive keys, which vibrated the strings). Thus, on the harpsichord the percussive aspect was more evident; while in the clavichord, the expressive feature made the sound of the strings prevail (and not the plectrums plucking the strings). (SIGNORELLI, 2019, p. 10).

However, we have already established in another scientific article that both instruments consisted of struck strings and competed until the mid-1700s. The official history of the tradition informs us that the harpsichord won, due to its weak and weak sound (although poetic and refined) of the clavichord.

We have also pointed out in another scientific article that several virtuosos were responsible for the victory of the harpsichord over the clavichord (which we commented on above), including: Bach, Häendel, Scarlatti, Rameau, Couperin, Carlos Seixas. These composers were great harpsichordists and contributed to the development of the harpsichord technique (and nowadays, also the piano). From the pen of Signorelli (2019), we infer that:

> In approximately 1702, Bartolomeo Cristofori invented the *pianoforte (cravicembalo col piano e forte)*. This instrument was initially called *arpicembalo*. This instrument with strings struck with wooden hammers (previously copper, leather or bird feather beaks were used – such as crow feather tips, for example – to pluck the strings) represented the union of the sound characteristics of the harpsichord and the clavichord (direct predecessor of the piano) allowing soft and strong playing in a combination of the brightness and power of the cavo with the expressiveness and refinement of the clavichord. (SIGNORELLI, 2019, p. 9 and 10).

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At this time, this new instrument used, for its operation, strings struck by suede-covered hammers which, in turn, were activated by the keys. The previously mentioned mechanism allowed the pianist to perform different nuances of intensity, different articulations (linked or released notes) and expressive melodies.

In fact, in line with what we have already pointed out in another scientific article, the increase in all these aesthetic possibilities led to the need for the development of another instrumental execution technique.

According to Richerme's lesson (1996), both piano performance and teaching emerged in the middle of the 18th century. As Hertel (2006) teaches, when outlining the evolutionary process of piano technique:

> Since then, pianistic technique has undergone several transformations. This and the old keyboard instruments were externally similar, but they did not have the same sound and mechanical quality nor, consequently, the same playing technique. On keyboard instruments, for example, you need to control the speed of your fingers when lowering the keys under pressure. But, on the piano, it is the arm muscles that will control the weight and force expended in this act, which constitutes one of the elementary problems of pianistic technique. Precision in articulation, that is, the touch of the fingertip on the key, is the most important point in the harpsichord technique. As Kochevitsky (1967) states, the reduced movements of the hands and arms, together with an excessive and isolated articulation of the fingers, represent the playing of the harpsichord that was maintained for a long period [...] Richerme states that the search is valid " of a technique in harmony with physical and natural principles and laws, a technique that does not attempt to contradict such principles and laws, so that high standards of results can be obtained more easily. [...] Specific knowledge and a lot of diligence are required, arising from a rational analytical attitude". And the author continues: we must seek a technique that presents "a perfect anatomical, physiological and mechanical connection between the physiological apparatus performing the instrument and the adaptation of its methodology to the proposed objectives, aiming to allow man physiological and psychological well-being ". In conclusion, "technique must be a means, never an end". This is made up of some elements considered fundamental for interpretation, since, without them, the pianist will hardly be able to realize his artistic ideal (HERTEL, 2006, p. 3, 13).

We will not dwell on this point onwards, as we have already addressed the topics on screen either in our Master's Dissertation in Interpretative Practices-Piano (Performance) entitled "The importance of Musical Imagination in pianistic practice" or in our Scientific Articles that deal with both on Musical Imagination and on Piano Technique and Interpretation.

As we previously highlighted in another scientific article, we began teaching the optional theoretical discipline "History of the piano and pianists: technical-interpretive trends and pedagogical approaches" at the Faculdade de Música do Espírito Santo (FAMES) in March 2016. This discipline has as a main objective to equip students with a technical-musical arsenal

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based on historical subsidies that provide students with the acquisition of new motor skills and the enhancement of their capabilities in solving piano problems.

This subject was the result of our concerns, inquiries and research carried out in this field aimed both at developing pianism (artistic or cultural objectives) and at helping students with their pianistic questions (teaching or educational purposes).

It is worth adding that we continue researching in this line, as it constitutes study material for a lifetime. Therefore, we do not intend to exhaust or consume the subject covered in this particular Scientific Article, as we view the depth of the topic at hand with humility and broad verticality. So, let's move on to the analysis of the piano schools under discussion.

2.2 THE PRE-SCIENTIFIC SCHOOL (OR THE SO-CALLED "FINGER SCHOOL"[two])

Indeed, Kochevitsky (1967, *apud* Signorelli, 2019) points out that piano teaching continued to follow the principles of the ancient harpsichord technique from the 17th century, while the pianoforte and its own performance technique evolved.

In this vein, the first school or pedagogical approach arising in the History of the piano and pianists can be identified as the so-called "finger school" or pre-scientific school.

For the pianist and teacher Richerme (1996, *apud* Signorelli, 2019), the period before the 1880s is considered by researchers as the pre-scientific period of pianistic technique. According to Rattalino (2005), Chiantore (2014) and Kaemper (1968), it corresponds to the old French clavicinistic schools of Rameau and Couperin as well as the old Italian clavicinistic school of Scarlatti.

Its main characteristics are: i) the rounded position of the hands with the tips of the fingers; ii) the articulated touch of the fingers (active fingers); iii) the posture with the arms immobile (seeking independence of the fingers with the aim of exercising them in isolation); iv) the percussive sound resulting from digital touch; v) deepening the fingers on the keys inside the piano (sinking or burying the fingers in the piano); vi) purely mechanical training with many hours of daily practice; vii) the absolute and infallible authority of the teacher (pedagogy

[two] The reference in quotation marks is justified because this is the main name by which the aforementioned school became known in the piano world or Pianistic Tradition.

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professorial and closed X dialogical, creative and libertarian pedagogy); viii) the absence of effective technical remedies; since, similar to the description of Amy Fay's classes in her book “Music studies in Germany”, the master did not show how to correct errors (*apud* Kaemper, 1968).

In this vein, Kochevitsky (1967) adds that the student should repeat the same passage several times until they get the model presented by the teacher correct. Hence the notion of the term *rehearsal* in French, "*repetition*", as the act or effect of endlessly reproducing a certain musical section until technical-mechanical perfection is reached.

Among the most expressive representatives of the so-called School of Fingers, Kochevitsky (1967) points out *Muzio Clementi* (1752-1832) and *Karl Czerny* (1791-1857). Both are related by the aforementioned author because they advocate systematic studies of the technique as a pedagogical practice.

In fact, Signorelli (2019) highlights that Clementi was the first to compose specifically for the piano. In his work “Introduction to the Art of Playing the Piano”, he created a didactic method in order to develop piano technique. For him, the five fingers should be strong and equally developed (metric-sound equality). He trained his fingers in the same way and tried to keep his hand still on the keyboard. Each of the five fingers must be positioned on its respective key and the fingers that do not work, articulate or function must remain quiet. He worked daily for hours on end, which is why he was one of the pioneers in requiring many hours of practice. Considered by Kochevitsky (1967, *apud* Signorelli, 2019), the creator and founder of modern piano technique, was Beethoven's teacher.

According to Lucas (2010, *apud* Signorelli, 2019), was the predecessor of most of the traditional national piano schools (development of piano schools in the world). According to the author:

> The history of pianistic performance then develops with Mozart and soon after with Muzio Clementi (1752-1832), considered “*The father of all technique*” whom Vladimir Horowitz called “*The founder of the Modern Piano School*”. Ludwing Van Beethoven (1770-1827) stated: “*Anyone who studies Clementi in depth also knows Mozart and other composers...*” (LUCAS, 2010, p. 30 and 31).

In this turn, Signorelli (2019) points out that, in 1779, in London, Clementi published his first Sonatas for piano; and in 1826, his “Gradus ad Parnassum” Op. 44 (“Steps to Parnassum”), a set of works dedicated to the development of the technique

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pianistics (studies), in three volumes. In 1781, the famous improvisation "duel" took place between Mozart (more focused on musical expression and the delicacy of nuances) and Clementi (who displayed his thirds, sixths and octaves as an asset).

In turn, Czerny wrote his "Complete Technical and Practical School of Pianoforte". His work consisted of short and long exercises. For him, technical difficulties should be preliminarily studied with excessive articulation of the fingers incessantly until they were able to be mastered. After overcoming this preparatory phase, the student would be able to study musical pieces. In this sense, Czerny managed to separate technical study from musical study (that is, pure technique from applied technique).

The study of technique advocated by Clementi and Czerny describes a time of absolute predominance of technique in execution, in which performers trained details until reaching perfection.

In this vein, a series of studies was preceded by a range of technical exercises. This is what Kaemper (1968) tells us about the Lebert and Stark Conservatory, in Stuttgart, Germany.

In effect, the School of Fingers only influenced*partially*the so-called old French school of Marguerite Long, as we have already detailed in a convenient moment of another scientific article. On the other hand, today we find very strong evidence in the use and teaching of the aforementioned pianistic resources.

2.3 THE ANATOMICAL-PHYSIOLOGICAL SCHOOL (OR THE SO-CALLED "ARM WEIGHT SCHOOL"[3])

Based on the ideas of*Ludwing Deppe*,*Rudolf Breithaupt*It is*Blanche Selva*, the anatomical-physiological school or natural school of the piano or the so-called "arm weight school" has as its luminaries Matthay (1932), Leimer-Gieseking (1951), Neuhaus (1970) and Gát (1980).

According to Gerig (1985), the first teacher to combine the simultaneous use of arms and fingers was Ludwing Deppe, allowing piano technology to develop through other theories. For him, the elbow should be the "leader" of the movements; and the wrist, a

[3]Once again, the reference in quotation marks is justified because this is the main name by which the aforementioned school became known in the piano world or Pianistic Tradition.

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"feather"[4]. Thus, the entire pianistic apparatus has participation or involvement in the pianistic performance. This is what the lesson of Gát (1980, *apud* Signorelli, 2019), when dealing with the performer's need to be in constant contact with the piano:

> The most ardent desire of every performer is to amalgamate, to become one with his instrument in such a way that he feels that it is not a foreign body, but an organ of communication opening up wonderful possibilities for him, an organ that enables him to speak more. directly and naturally about your feelings and emotions than you could in spoken speech[5](GÁT, 1965, p. 75, our translation).

For him, the *full body* participates in regulating dynamics and weight distribution, so that the application of greater or lesser use of weight is related to the dynamic demands of the musical section. This is also the idea that we deduce from Riemann's pen (1936, *apud* Signorelli, 2019), otherwise let's see:

> Interpreting a work of art on the piano does not simply mean translating graphic signs into effective sounds, but rather involving yourself deeply with the work, feeling it intensely and giving it new sonic life.[6](RIEMANN, 1928, p. 103, our translation).

In the same position, we find Fink (1999, *apud* Signorelli, 2019), when dealing with technical piano vocabulary (pianistic movements), namely: vocabulary of hands, forearm, upper arm, etc. Such gestures make up, according to the mentioned author, a true choreography contouring (modeling, sculpting, drawing) and giving shape to the musical groups (or drawings).

As a result, Signorelli (2019) records that a genuine sense of freedom, artistic sense and musical expression is acquired. Also Sandor (1995, *apud* Signorelli, 2019), Whiteside (1996, *apud* Signorelli, 2019) and Bruser (1997, *apud* Signorelli, 2019) support the coordinated participation of the entire biomechanical apparatus of the instrumentalist in the execution of a musical excerpt. However, Richerme (1996) assures us that such ideas are not completely new in the pianistic field, as they have already been presented in an embryonic form.

Thus, based on Signorelli (2019), the first books on the technique of performing keyboard instruments – such as those of harpsichordists François Couperin (1716) and Carl Philipp

[4]The expressions are in quotation marks to indicate the terminology originally used by Deppe in his work.

[5]The most ardent desire of every performer is to amalgamate, to become united with his instrument in such a way that it should no longer be felt by him to be some strange body but rather an organ of communication opening wonderful possibilities, an organ enabling him to talk more directly and more naturally about his feelings and emotions than he could have done in ordinary speech.

[6]Interpreting a work of art on the piano does not simply mean translating graphic signs into effective sounds, but rather deeply understanding the work, feeling it intensely and infusing it with new sonic life.

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Emanuel Bach (1762), who already made some mention of the pianoforte as a new instrument - are the ones who present some ideas that are most in line with modern theories. These works make some reference, albeit in a few lines, to the relaxation and freedom of movement of the fingers, as well as having a certain advantage in keeping the fingers always very close to the keys.

Likewise, Hertel (2006) clarifies that music masters did one thing, but taught another. In fact, educational practice did not coincide with instrumental practice. Otherwise, let us listen to his words:

> The 18th century presents, in its second half, the artistic personalities of Wolfgang Amadeus Mozart (1756-1791) and Joseph Haydn (1732- 1809), who began their musical careers composing works for the harpsichord, then moving to the piano . Mozart had an agile, clear and refined touch. Due to his innate intuition, the melodic passages presented an expressive cantabile. It integrated perfectly with pianos with Viennese mechanisms, making the most of their resources. Haydn incorporated the piano throughout his life. His music, despite its simple and accessible appearance, contains characteristics considered important, such as themes of an intellectual nature, original modulations and superior orchestration [...] Just like Liszt, other great composers and pianists emerged who continued to perform technical-pianistic execution natural, yet intuitive, using the piano apparatus in a coordinated way, as others before them also did. But, as Kochevitsky observes, despite all this innovative movement on the part of composer-concertists, teachers with an archaic, routine mentality and without any creativity, remained obedient and submissive to the teachings of the ancient School of Fingers. By maintaining this position, they ended up harming their students physically and psychologically. The situation reached such an aberrant point that protests arose, both from piano teachers, aware of their profession and with an open mind, and from doctors who treated pianists and their physical and muscular problems. (HERTEL, 2006, p. 3, 4 and 7).

Thus, the masters already prefigured in the practice of Music Making what would be scientifically systematized "*a posteriori*" in musical thinking. In this context, Signorelli (2019) notes that, in parallel with the development of piano technique, John Broadwood began to manufacture his pianos in London. His pianos followed the "English" type of mechanics (with a heavier touch and larger sound, therefore). It is important to highlight that Broadwood was responsible for introducing the sustain or prolongation pedal ("*sustain*") and his pianos were Ludwing Van Beethoven's favorites. Therefore, Signorelli (2019) argues:

> This fact may explain the technical and aesthetic revolution carried out in Beethoven's Work: with an increase in sound (more robustness); timbre enrichment (with the addition of the sustain pedal); greater dynamic and agogical width, but with rhythmic rigor; solidity of touch combined with fluidity or fluency of pulsation; growth of contrasts and drama; greater detail of your intentions in writing; It is

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> consistent increase in expressiveness with the consequent vertical deepening of the musical content. (SIGNORELLI, 2019, p. 14).

In this regard, Hertel (2006) also maintains that:

> The music of Ludwig van Beethoven (1770-1827), vigorous and vibrant, required pianos with stronger and more resistant mechanisms, which produced a brighter and more robust sound. His piano music contained technical and musical demands that ended up imposing relevant progress in pianistic technique, such as, for example, long improvised cadences, considered important elements of the construction of the musical work. Strong contrasts in dynamics are also considered fundamental guidelines in his musical expression, that is, the *pianissimo* as opposed to *fortissimo* followed by *sudden piano*, dense chords, quick register changes, time signature changes within the same piece, rhythmic vitality with unexpected accents and the melody treated with the same importance as the other elements. It was Beethoven's innovative and revolutionary ideas, considered modern for his time, mainly his revolt against the rigid standards of the old school, that led some 19th century musicians to oppose the old pedagogy (School of Fingers), ending up abandoning it. it completely (HERTEL, 2006, p. 4 and 5).

Thus, new ideas emerged about the formation of touch and the importance of the critical ear in sound production at the piano. Thus, Kochevitsky (1967) highlights the influence of Friedrick Wieck (1785-1873). Clara Schumann's father, he received influences from the old School of Fingers; However, he advocated the importance of students listening to themselves when playing.

So, as for the students, "[...] he tried to develop their ears, awakening them to musical activity before teaching them the notes. This innovation, modern for the time, is today equivalent to the principles of the Suzuki method" (HERTEL, 2006, p. 5).

Kochevitsky (1967, apud Signorelli, 2019) reports that Frédéric Chopin (1810-1849) innovated by advocating a more natural position for the fingers, as well as using all parts of the piano apparatus in the performance (fingers, hand, wrist, forearm, elbow, arm, shoulder, hip and trunk). Despite keeping the hand motionless when passing the thumb under the hand and passing the hand over the thumb (or passing the other fingers over the thumb), he maintained the use of *applied technique* (that is, the study of a complex piece of music that contained all possible technical difficulties) instead of *pure technique* in force until then.

As an example of the application of this idea to technical exercises, we can mention the 24 (twenty-four) Chopin Studies Op. 10 and Op. 25, as well as the 3 (three) Posthumous Studies without Opus numbering[7]. In this supplement, Chopin's studies elevated the musical form

[7] The final three pieces are part of a compendium called *"Method of piano methods"* (Method of piano methods) and were compiled by Moscheles and Fétis. Composed in 1839, they do not have an assigned Opus number. They appeared in Germany and France in November 1840, and in England in January 1841. Among the copies of the original editions of the etudes, there are usually several manuscripts written by Chopin himself and copies

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from purely utilitarian exercises to great artistic masterpieces. Although sets of piano exercises were common in the late 18th century (Muzio Clementi, Johann Baptist Cramer, Ignaz Moscheles and Carl Czerny were the most relevant and significant), the Chopin Etudes presented a set of entirely new technical challenges incorporating to the concert music repertoire. His studies combine musical substance and technical challenge to synthesize a complete artistic form; that is, they are considered the product of mastery in combining the two elements.

As Schonberg (1960) and Gerig (2007) point out, its effects on contemporaries such as Franz Liszt and Robert Schumann are notable, based on Liszt's review of his own Concerto Studies after meeting Chopin. Similarly, the artistic ennoblement of the style of the studies had repercussions on the Transcendental Studies by F. Liszt and the Symphonic Studies (Twelve Symphonic Studies, in the Form of Variations) by R. Schumann.

In this regard, Signorelli (2019) informs us that R. Schumann considered it more important to mentally perceive the essence of the composition rather than mechanically repeating either note for note or measure for measure or studying the technique of the piece separately for hours on end. Therefore, it is important to hear yourself while playing; because the fingers must obey the brain's command (and not the other way around).

However, according to Göllerich (1996), F. Liszt reached the same conclusion in his mature years when he taught in Weimar, Germany. This fact is clarified in the exposition of Hertel (2006), for whom:

> As for Franz Liszt (1811-1886), he did not leave written pedagogical guidelines, but it is known that, as a young man, he accepted the technical impositions of the time, however, he maintained his individuality, gradually forming his own thought, only compatible with the most advanced ideas of the 20th century. Both Kaemper and Kochevitsky transcribe excerpts from reports by Amy Fay (Liszt's student), in which she wrote that the composer did not teach his students how to study or play; they themselves needed to think and come to his personal conclusions. Liszt did not consciously analyze his execution, doing everything by intuition like the genius he was. He recommended to his disciples the same technical guidance that he had received as a student of Czerny, however, he himself did the opposite without realizing it. The pursuit of technical skill for Liszt consisted of the development of musical imagination. He also highlighted the importance of learning to listen to one another. It was necessary, therefore, to capture the meaning of the work, because the technique should not only serve the artistic objective, as it is created by the sound image. The composer, according to Kaemper, gives the piano a symphonic treatment, and his compositions require the use and coordination of the muscles of the arm, shoulders and back, as well as the weight of the arm from the shoulders to the tips of the fingers, with the participation of the whole body in touch. His technique calls for active dynamics, free and elastic movements, varied positions

additional ones made by his close friend, Jules Fontana. At the same time, there are also editions by Carl Mikuli, a student of Chopin.

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> and well-exercised fingers. This is what is called *free ringtone*. Liszt always remembered the importance of knowing in advance the sound you wanted to obtain, so that you could then use the appropriate technique with the appropriate gesture. According to him, the inner impulse is what determines the rhythm and dynamics to play expressively. Information found in the diary of Madame Boissier, mother of one of Liszt's students, reveals that his fingers were so flexible that they had no defined position; His hand was passive, lowered, soft or inert, or else in continuous movement, free and graceful. It eliminated the rigidity of your touch by projecting your fingers from wrist movements over the keys, with perfect flexibility. Madame Boissier further wrote that Liszt's playing was genius and inexplicable, fluid and floating. In fact, in his pianistic works, the phrasing and fingerings show the action of his free touch (HERTEL, 2006, p. 6-7).

The view of Neuhaus (1973) does not conflict, which highlights the importance of the muscles of the arm and forearm to prepare each note in advance by placing the finger that will play in the exact position, ready for the attack. The following words are yours:

> To perform piano literature with the necessary technique, it is necessary to rely on the contribution of all the anatomical and motor possibilities of the human body. From the almost imperceptible movement of a phalanx, of the entire finger, hand, arm, shoulders and back, in short, the entire upper part of the body that fixes its point of support from one part at the fingertips on the keyboard, and from the other on the seat[8](NEUHAUS, 1973, p. 90, our translation).

In the same sense, Matthay (1932) states that in pianistic performance, the movement of the fingers is always accompanied by the participation of the hand, forearm or upper arm. However, for him, relaxation should not mean weakness and laxity; but a slight state of alertness and tension when playing. Reframing, resizing and readjusting the procedures of technical ideology in historical terms, Hertel (2006) adds that:

> Kaemper writes that those fundamental principles for pianistic technique, already presented by Chopin and Liszt, although somewhat vague for other artists, began to take hold around 1885. One example is the use of the entire arm, from the shoulder to the ends, which implies both the use of the energy that characterizes the impulse to play, and the pressure or weight received by the fingertips. Thus, impulse and pressure become the essence of the movements that, in turn, will form the piano technique. It was from 1885 (Kaemper) that the technique from the time of Clementi (School of Fingers) to the time of Liszt (which included the entire *piano apparatus*) began to be analyzed by theorists in a new way: scientific (HERTEL, 2006, p. 8).

Thus, Kaemper (1868) places the year 1885 as the initial milestone or birth of modern piano technology. According to the aforementioned author (*apud* Signorelli, 2019), Ludwing Deppe (1828-1890), among others, founded the Anatomical-Physiological School, whose basis was the

[8]Pour attention to the necessary technique in the piano littérature, which is the contribution to the anatomical possibilities and motors of the human body, after the mouvement on the perceptible part of one phalange of the body, of the main body, of the 'avant-bras, de l'épaule et même du dos, bref de toute la partie supérieure du corps qui prend son point d'appui d'une part au bout des doigts sur le clavier, et de l'autre le tabouret.

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study of the bones and muscles that make up the so-called piano apparatus. His objective was to develop a rational technique serving as a model for all pianists as a kind of stereotype.

Thus, Deppe (*apud* Kochevitsky, 1967), German conductor and piano teacher, maintains that the sound must be produced not by striking the finger (percussive touch); but by the coordinated action of all parts of the piano apparatus.

Therefore, the production or emission of sound on the piano must come from the entire arm in a coordinated action. The fingers and hands must be strengthened and assisted by the free movement of the arm, distributing the effort over all parts of the body (from the shoulder to the fingertips). This mechanism thus guarantees the practical implementation of the principle of least effort and economy of movement, giving rise to the expression *playing apparatus*.

For Deppe (*apud* Kochevitsky, 1967), the weight must come from the arm from the shoulders. In this context, Deppe considers weight as the essential cause of impulse, "*not her*" or balance being responsible for a fluid, continuous and round movement.

On the other hand, Rudolf Maria Breithaupt (1873-1945), following Kaemper (1968), one of the exponents of the Anatomical-Physiological school, advocated the loose and heavy arm as the founding principle of piano playing. The hand had to maintain a passive, lowered, fallen, inactive and inert position, relegating the importance of digital articulation to the background of pianistic performance.

For this teacher, the old technique needed to be revised through more accurate sound and visual observation, which would result in the correct execution of the movements. Therefore, the most important thing about piano technique, according to this aspect, would be natural movements (and not muscular development).

According to Kochevitsky (1967), this idea of Deppe consisted of the notion of the so-called "free fall". However, according to him, Deppe did not mean that the arm should fall freely. Thus, he defends that free-fall be understood not in a literal sense, as the expression used by Deppe was *"controlled free fall"*. In this regard, Hertel (2006) concludes that:

> Deppe, adds the author, taught his students that movements needed to be rounded and smooth, with the arm and forearm rotating, which would make the wrist obedient and flexible. He wanted his hand a little forward and each finger forming a straight line with his key. The fingers needed to be conscious and free with sensitive tips, not hitting the keys, but caressing them. He highlighted the active role of the mind when practicing with the playing apparatus, in addition to auditory training with the technician. He called this making music by participating. During his lifetime, his theories were not

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> had great reach. But, after his death, in 1890, his followers spread and developed his ideas, which served as the basis for the emergence of new ones, such as relaxation and weighted touch. It was the scientific environment of the second half of the 19th century that led piano teachers and theorists to place piano study on a scientific basis (HERTEL, 2006, p. 8).

In the same vein, Neuhaus (1973) also addresses the concept of *free fall* as a principle underlying pianistic playing.

In this vein, Leimer-Gieseking (1951, *apud* Signorelli, 2019) addresses the so-called *weight touch* or *arm touch*, in which the fingers function as passive touch elements serving as support for the weight (pillars, columns, stakes). It is also commented on the *active touch* (fingers as active elements of execution).

To Jungle (*apud* Kaemper, 1968), the *touch with the weight of the arm* it must be done by letting the hand press freely on the keyboard, controlling the weight load of the hand and arm. According to Breithaupt (*cit* Kaemper, 1968), relaxation and weight control are practically the same thing.

Despite the fact that the Anatomical-Physiological School is based on relaxation and touching the arm, neglecting the work of the fingers or disregarding the importance of the digital function; It is not difficult to understand them, as both lead to *balance* (and not inertia) of the pianistic whole, favoring the harmony of the performer-instrument ensemble. However, many criticisms were made regarding the Anatomical-Physiological School, as Hertel (2006) adds:

> Followers of the Anatomical-Physiological School wrote several books and articles on how to teach and play the piano. For them, the most important part of these writings contained a detailed description of the anatomy and mechanics of the piano apparatus. However, they did not take into account the dangers arising from possible incorrect muscle use practiced by pianists. These were recommended not only to swing the upper part of the arm in a rotating movement, but also to find their own solutions to certain technical problems. It was believed that purely mechanical exercises could be replaced by the development of perception and consciously trained correct movement. However, by simplifying this technique in such a way, these theorists came to assert that, to solve certain technical problems, quickly and effortlessly, it was enough to know which muscles would be involved, their function and how to perform that specific technique. They did not even consider the function of the brain and the central nervous system as directors and controllers of this activity. Therefore, one can note as causes of the possible failure of this school, in addition to the simplified, limited and superficial knowledge of the anatomy and physiology of the piano apparatus, a near-disdain for the work of the fingers and the excessive importance given to the movement of rotation and balance. of the upper arm. But some talented pianists managed to survive the exaggerations and efficiently develop finger technique, also studying the principles of the Anatomical-Physiological School. They freed themselves from excesses, continuing their artistic activities normally. (HERTEL, 2006, p. 9).

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In view of the above, it can be said that the Anatomical-Physiological School had as its main contribution the fact of bringing to the fore the element correlated with Musical Imagination as the ejector focus of pianistic movements based on the touch of the weight of the arm in a state of relaxation from of the shoulders.

So that weight control is carried out from the element of musical perception, that is, Musical Imagination or aural capacity (insta gizar, ability or competence to hear the sound internally as a mental representation before playing, producing or emitting a certain piano sound).

2.4 THE PSYCHOMOTOR SCHOOL (KINESTHETICS-MOTOR, KINESTHESICS, KINESTHESICS-COGNITIVE, COGNITIVE-MOTOR, PROPRIOCEPTIVE, PSYCHOTECHNIQUE OR PSYCHOPHYSICS)

The psychomotor, kinesthetic, kinesthetic-motor, kinesthetic-cognitive, cognitive-motor, proprioceptive, psychotechnical or psychophysical have as main references Kochevitsky (1967), Neuhaus (1973), Kaplan (1987), Azevedo (1996), Richerme (1996) and Hertel (2006). This school advocates cerebral, rational and conscious study of the piano in order to optimize results by reducing or eliminating the possibility of wasting energy.

In this paradigm, Kochevitsky (1967), in turn, informs us that, in order to develop the motor skills necessary for pianistic performance, one must focus on the quality of sound production or emission resulting from balance and control of loudness, on proprioceptive sensations[9] and the necessary movements[10].

The aforementioned author briefly describes the piano learning process as follows: 1) auditory stimulus (imagine the sound); 2) anticipation of the motor act (preparation); 3) motor act resulting in the sound effect; 4) auditory perception and evaluation of the result obtained.

[9] Proprioception, also called Kinesthesia or Proprioceptivity, is the term used to name the ability to recognize the spatial location of the body, its position and orientation, the force exerted by the muscles and the position of each part of the body in relation to the others, without using vision . This is, then, the process through which the brain can autonomously perceive the movements of the body itself or its parts in space.

[10] This specific type of perception allows the maintenance of postural balance and the performance of various practical activities.

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We also find this teaching in Kaplan's lesson (1987). According to him, "it is necessary to diagnose the reason for the difficulty, its cause and the solution. The how will emerge quickly" (KAPLAN, 1987, p. 87).

Therefore, there are two fundamental questions that cannot be left unanswered, namely: 1) what I feel; 2) what I hear. These are important factors to be analyzed from a psychomotor (psychic and physical) point of view.

Thus, pianistic performance is composed of a subtle and sensitive interaction of psychophysical attributes. Internal hearing controls this fine and tenuous interconnection by imagining the desired sound, governing the movement (touch, sound, touch) and critically appreciating the sound result obtained. In this regard, Hertel (2006) points to the following evolution within the scope of piano technology:

> Even with so many mistakes, the Anatomical-Physiological School did not completely disappear. From it emerged currents with new theories and ideas, for example, about movement and exercise. On this subject, the German physiologist Emil Du Bois-Reymond, according to Kochevitsky, presented to the public, in 1881, a new theory about human motor activity. This depends on the correct association of the muscles and not so much on their contraction, since, according to him, muscular work tends to grow, stop and decrease. Reymond stated, according to the author, that the human mind, through exercise, becomes more elastic and versatile. Therefore, he opposed the ideas of the previous school, when he claimed that it was possible to make muscles strong and resilient. But, as for acquiring agility, this would not depend solely on gymnastics, but on the intervention of the mind. He was the first scientist who explained some important points about movement in piano practice. Oscar Raïf elaborates on his experiences about this movement. For him, it is the intellectual level of people that determines greater or lesser agility in their fingers, this ability being conditioned on their hearing capacity. The conclusion reached by Raïf, cited by Kochevitsky, shows that increasing agility in isolated fingers makes no sense. Because, in fact, the difficulty lies in the precision of the successive movements of the fingers, which is generated by perception and will, which originate, in turn, in the central nervous system. Therefore, it is necessary to develop in pianists the dexterity of the mind as well as that of the fingers. Years later, Adolf Steinhausen, also cited by Kochevitsky, physician-surgeon and critic of the School of Fingers and the Anatomical-Physiological School, stated that, despite the controversies, pianists should use the strength of the entire arm, from the shoulder to the tips of your fingers to achieve the desired effects. The body must participate continuously and incessantly, but without rigidity. For him, the pianistic movements contained in these acts differed from others due to the action of the central nervous system. That is, the pianist would use the natural strength of his fingers and coordinate gestures better, avoiding unnecessary movements. As this system would be responsible for the origin of the movement, explains Steinhausen, the practice would become a psychic process, as well as its automation. Mechanical and routine finger exercises can increase the size and strength of the muscles during normal piano practice. But it is through practice (mental learning) that one learns to move the fingers in the right rhythm and to correctly execute the notes, as well as to perform the dynamics with their sound gradations. As for fluency, safety and speed in the movements performed, these are obtained by eliminating useless muscular actions or gestures. Steinhausen thus showed, unlike Czerny, that technique is inseparable from musicality. However, like other theorists, he also made mistakes,as when he believed that artistic ideals did not evolve and

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> were the same for all pianists. However, reality shows that each musical conception corresponds to a different technique, adapting, however, to the personal characteristics of the performer. Kochevitsky remembers that Steinhausen was one of the theorists who came closest to a rational conception of piano technique. He showed that the pianistic apparatus is as important as the imagination and the objective to be achieved in the technical development (HERTEL, 2006, p. 9-11).

According to Kaplan (1987, *apud* Signorelli, 2019), performing piano performance requires the pianist to form motor habits and develop auditory perception. In other words, it also requires the development of sensory hearing. Hence the fact that Neuhaus (1973) does not speak of absolute relaxation, but of *harmonic balance* between the different members of the body responsible for piano playing.

The aim is to make each component part of the biomechanical system or piano apparatus assume its position in order to *act at least*: fingers (phalanges), hands (wrist), forearm (elbow), arm (shoulder) and trunk (hip).

Thus, the responsibility for the pianistic movement or gesture is democratically distributed to each element of the biomotor set with energy savings so that none of them are overloaded.

Therefore, useless muscular actions or gestures are avoided without loss of energy, saving time. In honor of the principle of economy of movement, only those muscles strictly necessary to perform a given complete gesture should be contracted.

For Kaplan (1987, *apud* Signorelli, 2019), pianistic performance requires perfect and harmonious coordination of the simultaneous movements performed by the upper limbs; which comprise arms, forearms, hands and fingers.

Professor Kaplan (1987) highlights the need for flawless muscular coordination, sensoriality or kinesthesia and motor skills for the effective achievement of effortless movements. Therefore, perception (both musical and bodily) is an unavailable factor for good piano performance.

This intertwined, intrinsic and intimate interrelationship forms a continuous and intermittent, bidirectional and dialectical flow; whether between mind and limbs or between pianist and instrument. It is a living and profound process, fruitful and dynamic, renewing and full of meaning. From this we can once again extract the importance of Musical Imagination for the practice of pianism. In this turn, Kaplan (1987, *apud* Signorelli, 2019) also observes that piano learning depends on a mature nervous system capable of carrying out this task.

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task, the individual's intellectual level, in addition to physical conditions appropriate to this complex act.

However, although Richerme (1996) carries out a detailed anatomical-physiological analysis of the pianistic apparatus or biomotor set, we can consider (albeit in a preliminary, preambular, superficial, low, floating, vague, shallow and premature way) that his conclusions frame it in the schematic categorization belonging to the psychophysical school of piano.

Regarding the Psychomotor School, we consider Hertel's (2006) reasoning pertinent, when taking a look at the timeline regarding the progress of pianistic technique:

> At the beginning of the 20th century, the already known pedagogical trends were brought together and presented again. Currently, they coexist in various music schools and conservatories, balancing their elements in a viable way. The School of Fingers remains; however, at the beginning of the last century, despite giving a little more freedom to the hand and arm, it still did not allow for very articulated fingers. His teaching continued to be done by practical people who had difficulty accepting new changes. As for the Anatomical-Physiological School, it brought progressive and sensible ideas to piano pedagogy. The theorists fought against ancient authoritarianism and, despite not being musicians, they taught at this school. This continued to focus on science, dealing with problems of weight and relaxation, looking for correct and natural forms of movement. It also sought to determine which parts of the arm and which muscle groups participate in the movements. It was, however, the attraction of an effortless technique that contributed most to his success. Furthermore, at the beginning of the century, a third pedagogical trend emerged, called the Psycho-Motor School by Grigori Kogan. With his concepts still adopted today, he explores the field of intellect and psychology, seeking to solve various pianistic problems, as the act of playing combines purpose and will, as well as various automated elements. The greater or lesser participation of these makes the movements natural, economical and precise. It is a school that allows the use of all parts of the piano apparatus, that is, from the tips of the fingers to the torso. It can be considered as a universal and balanced technique, in which natural coordination plays an important role, as reported by Kochevitsky. In this context, the figure of the teacher becomes important in the pedagogical-pianistic process due to his knowledge, experience and talent. Your task is to explore the pianist's musicality, discuss music and demonstrate your artistic ideas through the instrument. This procedure was adopted by pianists and pedagogues such as Leopold Godowski (1870-1938), Arthur Schnabel (1882-1951) and Walter Gieseking (1895-1957). The Italian pianist and composer Ferrucio Busoni (1866-1924) was one of the first of this school to affirm the importance of mental work in the pianist's practice. For him, the brain is the seat of technique, combining distances, shapes and coordination, which makes motor activity flow naturally (Kochevitsky). As the technique has its roots in the central nervous system, the mind must control the sound. It is she, explains the author, who directs the motor activity at the piano, observing the musical movement with imagination, and then carrying it out. Thus, the conscious mind, for him, is the one that focuses on a specific purpose, in this case, motor activity, which can influence the subconscious. Basic principles such as a clear mental conception of the musical objective to be achieved,Concentrated attention and energy directed towards the execution of such an objective will dictate the success or failure of the study. Precise and intense ideas also help motor agility to develop. A correct pianistic technique, adds the author, needs to be broad, diverse and with rich imagination, taking into account the gestures, position and interrelationship of the pianistic apparatus,

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> internally feeling the muscular and rhythmic sensations, mainly the sound result of the movement. Currently, it is observed that the pianist seeks to achieve this result by focusing on how to think and organize his own practical process. However, it is noted that in piano study and performance it is still the old school that continues to show what to do, complementing itself, however, with the teachings of composers who form the serious basis of this study and the basic piano repertoire. Therefore, unlike the two other schools, Psycho-Motora, by giving little importance to finger dexterity, makes the study of the musical content of the piece essential. Busoni considers that this study, until its meaning is grasped, should be done away from the piano because it is known that the difficulties of the keyboard keep the student away from this understanding; and it is only from the moment musical awareness occurs that dexterity can develop naturally. Therefore, the study of technique and interpretation should be parallel, taking advantage of the inevitable repetitions as vehicles for technical and rational adjustment to find the correct solutions. From the above, it can be concluded that pianistic technique is the sum of the means that a performer has to achieve his purpose, which is the artistic-musical idea, and cannot be considered independently of the music and the performer's personality. Therefore, piano technique, in this context, comes to mean knowledge not only theoretical, but mainly practical, of study methods and their details, which are essential for perfect execution (HERTEL, 2006, p. 11-13).

In this step, Kogan explains to us (*apud* Kochevitsky, 1967) three basic principles or foundations that he defends as psychological prerequisites for successful pianistic work, which are: a) the ability to internally hear the musical composition that is going to be interpreted on the instrument – hearing it extremely clearly either way a whole whether in detail (Musical Imagination, internal hearing or aural capacity); b) have a passionate and persistent desire to perform this work or piece of music in the way it was heard internally; c) fully concentrate the entire being on carrying out this task, both in daily practice and in public presentation.

Here, therefore, are some basic characteristics of the Psychomotor School, which advocates brain control over all component parts of the piano apparatus.

FINAL CONSIDERATIONS

Regarding the Piano discipline, we guide the students we receive towards the ergonomics of the kinesthetic-motor system, highlighting the importance of the feeling of comfort and expanding the vision of piano technique with new resources, equipment and tools.

In fact, many students have a significant and relevant notion of the sound result or "*goal*" to be achieved (the countless recordings available on the Internet

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even contribute to this fact), but they do not know *how to make* to achieve or obtain the desired effect.

Whereas Technique, from the Greek "*technique*", means art, technique, craft; that is, a way of carrying out an action or set of actions, substantiating the idea of *know how to do*. Therefore, the Technique is essential to the good performance of the pianistic activity.

In fact, Kaplan (1987, *apud* Signorelli, 2019), that the difficulties in performance do not reside in the performance itself, but are related to the pianist's ability to perform.

We found that the results have been gratifying, significant, important, relevant and remarkably positive. Especially in relation to students who reported pain when playing and difficulties in relaxing their shoulders (that is, they played with their shoulders elevated), a representative advance must be observed, making an exponential leap in quality.

From this perspective, students have been equipped with materials, information and content; It is important to state: garrisoned, strengthened, prepared, equipped, supplied, fed, treated, enriched, cultivated and equipped with a deposit, arsenal, menu, vocabulary or repertoire of means, methods, plans, processes, weapons, antidotes, resources and tools that empower, enable and accredit them to express both their artistic ideal and their aesthetic conception in a free or unhindered way.

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