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Art research, music knowledge and the contemporary crisis

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1. Introduction

Art research lies at the vertex of several critical points of contemporary culture. [1] Among these are:

- Systemic education reform, ranging from emerging educational technologies to privatization and commercialization of education at all levels.
- Discussions on the role of education, from the simple practice of teaching for work paid or as a broad, holistic process that aims for an integral education of individuals who are free, critical thinkers, capable of transforming society.
- The role of art in society as a factor in existential enhancement, like leisure activities or as an economic input of tourism and cultural industries.
- The role of artists in proposing new concepts for the problems of contemporary society and their ability to offer alternative solutions, or at least to propose new questions, based on non-exclusive rational modes of thought.

[1] Art research as an activity developed at institutions of higher education is extremely contradictory. For its definitions and discussions see López-Cano and San Cristóbal (López-Cano and San Cristóbal 2014).

The epistemic limits of conventional science to provide an understanding of the actual world in understanding human existence, etc.

Art research within the context of music presents three fundamental problems. Firstly, there is the problem of integrating the arts within the context of institutions of higher education along with adapting its peculiarities to academic and administrative requirements of universities. Secondly, there is the problem related to the very crisis of Western classical music (an aging, declining audience); its crisis as representing one of the pillars of Western culture; its stagnation within a closed, canonical repertoire; its obsolete performance rituals anchored on a pre-digital, pre-audiovisual culture that is unattractive to most contemporary viewers. It definitely seems to be suffocating under the weight of its own tradition). The third problem is the academization of popular music, by having been included in programs of higher education.

In each of these problems, the role of art research in music is intermittent because it does provide at times answers to challenges (with varying degrees of success), however, at other times, it only deepens its crisis.

In the first section of this paper we establish the characteristics of the art research model that we decided to adopt in order to distinguish it from other similar research activities which will also be discussed. Later, we will analyze several characteristic elements of knowledge production in the context of scientific research conducted by music performers in institutions of higher education. We will indicate specifically what constitutes their common objects of study and the support or format of its production (artistic discussions, processes and objects). In the last section, we discuss the types of knowledge that are produced in this research, between what can be expressed by verbal means and the difficulties of representing emotional, analogous, empathetic and sensitive thinking. We will try to go beyond oppositions, such as conceptual/non-conceptual, verbal/pre-verbal or logical/intuitive to better understand art research as a subject of knowledge and the challenges this research presents to the episteme of music.

2. A notion of art *research* in music

Art research is, by definition, a process of producing knowledge from practical experience. Some authors insist that the activity of art produces knowledge and is transmitted by its own means through its works. Because of this, they say, all artistic creation should be considered research and therefore must be evaluated and graded as such by educational institutions (Haseman, 2006; Smith and Dean, 2009). I call this a process of *homologation*. Another school of thought advocates the specificity of art research as a distinct process of creation or academic research. A thought contrary to the latter position, assumes there is a certain tension and even an opposition between creation and research: creation presents itself as a privileged form of production in art, unlike the work of "research" that artists can perform for its creation; it denies both the research practices articulated as artistic practices, as well as the creative ability of scientists (Asprilla, 2014).

I do not question that works of art are entities of knowledge in their own right and that the aesthetic process is in itself another way to experience being in the world.[2] Nor do I question the creative and aesthetic dimension of scientific or social research, or the "research" performed by many artists during their creative processes.[3] But, I do believe there is a problem of ambiguity with the concept of research. Here is an example. Every day when I go to teach, I "examine" my backpack to locate the pen drive I use to store class material. However, on some occasions, I *examine* my students to evaluate their understanding of my classes. The difference in meaning is obvious when employing the same verb "examine" and *examine*. In the first case, I am using the word in its colloquial meaning, while in the second, I refer to a specific academic activity that meets certain institutional requirements in terms of format, planning, operation and evaluation.

It is true that there is no consensus between institutions on what is art research. However, among its many interpretations, in this paper I will refer to a technical notion of *research* that is different from the colloquial definition of "research" that refers to the inquiry that any person does when seeking some type of information.

[2] By 1750 Baumgarten have already defined aesthetics as an "inferior gnoseology" or Science of Sensible Knowledge**.**

[3] The extraordinary thinker and technologist, Abraham Moles already talked about, in the late 1950's, the aesthetic dimension of certain decisions that scientist made during their research (Moles 1957 [1986]).

By art *research* I refer to a formal academic activity, practiced at institutions of higher education in the arts, that is distinct in purpose, principles, methods and results from creation, teaching or art management and from university academic investigation, although they share common elements. These elements are carried out by students about to complete their courses in order to assess some of the professional skills acquired or by teachers who want to make significant contributions to professional development, in addition to the production of art work. [4]

The art research I refer to, does not question the creative processes in scientific work, or the reflective-investigative processes of artists. Nor do I intend to rethink or reformulate the historical distinction between scientific and artistic fields, or describe their ontological traces of identity. Simply, more modestly, I propose distinct paths of working for the development and critical transformation of a specific professional field: the arts. On the other hand, not everything in art is creation. There is a significant amount of uncriticized reproduction of techniques, aesthetic canons and clichés. Also, art transmits values, discussions and cultural principles to control or disaggregate cultural subjects and dogmas. Historically, for example, music and dance played an important role in exercising bio-power, promoting patriarchal hegemonic heteronormativity that collaborated in building archetypal male and female bodies (Lopez-Cano, 2008). It also collaborates in the construction of hegemonic subjectivities by unifying taste through dogmatic canons or characteristic music and dances [*músicas y bailes identitarios*]. Art is also the scene of disputes over economic and symbolic power, revealing the ruthless organization and hierarchy of a group and the rise and control of regulatory institutions, economically and politically positioned. Art *research* can also address the criticism and reversal of these processes.

From this perspective, not every creation of art implies in *research* as we have defined the term. For this, it should meet certain requirements. Henk Borgdorff states the following:

[4] In this essay I refer to art research that can be developed by professionals outside of institutions of higher education or other specialized research centers.

> The practice of art can be qualified as research should its purpose be to increase our knowledge and understanding, pursuing an original research in and through objects of artistic and creative processes. Research in art begins by asking pertinent questions as to the research context and the world of art. Researchers adopt experimental and hermeneutic methods that show and articulate the tacit knowledge that is situated and embodied in specific works and artistic processes. The processes and research results are documented and disseminated appropriately to the academic community and the wider public (Borgdorff 2012, p. 53).

This definition requires further examination. On the one hand, we observe that one of the requirements is to express the desire to produce new knowledge and that this knowledge can collaborate to meet the specific needs of the art world. Similarly, as in any type of research, its processes and results must be documented and disseminated within the context of the interested community. However, there are two elements in Borgdorff's approach that may result in more problems. This research method is strongly linked to any *artistic production* being a result of *creative processes*. Thus, research is carried out "in and through" the same objects and processes that make up the products of the research. They are, at the same time, the means and the result of the investigation. Likewise, research methods tend to reveal, make explicit or at least organize the tacit knowledge embodied in these works and processes. These elements confer complexity to the process and the result of art research.

3. The cognizant role of art research in music performance

Florian Dombois, suggests that, because science has explained the world successfully, but not exhaustively, it now requires an alternative knowledge that focuses on aspects either ignored or denied by science itself (Borgdorff, 2013, p. 158). One such alternative is art research. However, the type of research developed in the field of music is not characterized by following up on questions, concerns and current issues as do other areas of knowledge. Unlike other arts, (music) does not concern itself with virtual communities, identity, immigration, terrorism, poverty, cancer, the Western crisis, religious fundamentalists, etc. If we look at the theses and other final works of the first, second and third cycles, we can see that the vast majority of projects deal with more modest and domestic

objectives: to question and respond to its own concerns within the field of professional music. [5]

Let's examine what is the formal object of study in the research of music performance; what is the nature of the knowledge it produces and what is its manner of construction, communication and dissemination.[6] In practice, these three dimensions are closely linked to each other and cannot be distinguished so clearly. We will make this distinction for expository reasons.

4. The ontological dimension: the objects of study

From an analysis of several recently presented cases (Lopez-Cano and San Cristóbal, 2014), we observed that research in music performance concentrates on issues related to: 1. *Performance practices*; 2. *Creative processes*; 3. Professional practice 4. Personal practices.

4.1 Performance praxis

Research in performance *praxis* may include an analysis of instrumental performance technique and styles of a certain music, age and place. It is based on written treatises, witnesses of famous performers or an analysis of recordings. Usually they make comparative analyses between different performances of the same work, the characterization of the performance style of a particular musician or their transformation over time, along with the study of the characteristics of the various elements of performance such as scenic and gestural aspects, and the interaction with other musicians and the spectators (Lopez-Cano and San Cristobal, 2014, p. 229-231). These areas were already being addressed by musicology with an emphasis on performance (Juslin, 2001; Clarke, 2004; Bowen, 2008; Cook, 2010; Leech-Wilkinson, 2010). However, contrary to this, art research is interested in these fields not to describe them or analyze them, but to

[5] Borgdorff calls them *intra-disciplinary* issues (Borgdorff 2013, 149).

[6] Borgdorff calls the first issue the *ontological question* (Borgdorff 2012, p. 45-46), the second *epistemological question* (Borgdorff 2012, p 47, 48). He is not occupied with the third.

critically inform the researcher's own performance. It is *action-oriented knowledge.*

For jazz musicians, for example, their interest lies in appropriating specific performance features of other styles or musicians. Students of early music often complement their reading of old treatises with interviews of current prestigious performers, and on several occasions, have pointed out inconsistencies between the historical information and actual practice. They generally prioritize the latter, since the knowledge they are interested in is not geared towards history, but its current professional practice. When historical information is scarce, they do not hesitate to provide it through experimentation and proposals of hypothetical, yet artistically effective, practices.[7] In addition to reconstructing historical performance practices, there is also the invention of new techniques or styles.

Some works question, reflect on and experiment with certain aspects of performance practices that have not been addressed by academic courses or that introduce a point of view and interest different from musicology.[8] A relevant characteristic is the role of experimentation on the musician's own musical instrument as a place of questioning, reflection, testing and communication of the research. In some cases, the very musical performance is analyzed *posteriori*, as if the musician-researchers were analysts independent from the performer (Lopez-Cano and San Cristobal, 2014, p. 196).

4.2 Creative process

The creative process puts more attention on the process of constructing the musical performance than on results. It records and documents the performance process; it offers descriptive or analytical reports on the selection of performance criteria, the reasons why such a certain tempo or phrase was chosen, the way ideas, inspiration or resources came about. It adopts the method of recording the

[7] See the work of reconstruction of the practice of basso continuo for *viola da gamba* and cello by R. Smith R. Smith (2009).

[8] See, for example, Jan's text (Schacher, 2013) on the impact of work with technology and corporeity; a reflection on the collaboration between instruments and composers by Stefan Östersjö, (López-Cano e San Cristóbal, 2014, p. 240) or the conceptualizations on elements of performance in diverse scenic arts in the work by Pedro González (López-Cano e San Cristóbal, 2014, p. 114, 117, 171, 176, 179, 181).

event, written text or a "making-of" type audiovisual documentary. In this context, music analyses of performances of works are conducted using distinct methodologies of formal analysis. This research is not intended to explain the formal and functional characteristics of the works, but support or generate ideas for performance. Generally, this research does not contain deep theories and arguments are inconsistent, without a coherent theoretical analysis. Once again, it deals with *action-oriented knowledge.*[9] Examples of creative processes:

> *The Virtual Haydn* de Tom Beguin, Naxos, BLU RAY AUDIO (making off) e palestra "A new experience in performance".

4.3 Professional practice

A large number of works reflect, analyze, criticize and propose alternatives to the mode of representing and disseminating music; how and where to perform, the rituals of the classical concert, the limitations of common disseminating formats, innovation in performance development, broadcasting and recording alternatives, etc. Frequently, these works propose models of innovative concerts; they work tirelessly to understand and improve the impact of scenic or gestural aspects, including developing audiovisual performances (San Cristóbal and Lopez-Cano, 2013). Their work tends to transform, improve, analyze or criticize the musical practice within the professional community of today's musicians.

Their intentions for knowledge are also focused on practice. They are interested in improving the professional field of the musician, creating new publics and new repertoire; intervening canonical repertoire, composing arrangements and compositions, reconstructing unfinished or lost works; even inventing utopian repertoire;[10] generating improvisations, staging, and interaction with visual aspects; improvement of corporal performance; new management models, etc.

[9] For good examples of this type of research see *Around a Rondo* by Stephen Emmerson (López-Cano e San Cristóbal, 2014, p. 222-223); *De la repetition au concert* by Remy Campos (López Cano, 2013) or *La pronuntiatio musicale une interprétation rhétorique au service de Händel, Montéclair, C. P. E. Bach et Telemann* by Rafael (Palacios Quiroz, 2012).

[10] See the Master thesis *An interpretation of the hypothetical concertante style of Schubert: Konzertstück for Piano and Orchestra, adapted from Lebensstürme D. 947* by Óscar Caravaca González (López-Cano e San Cristóbal 2014, p. 223).

They are characterized methodologically by promoting experimental situations and evaluating results. [11] Examples of artistic practice:

> *Proyecto Delta*: interrelación entre intérprete, obra y público en la música. Proyecto final de carrera (ESMuC 2013) de Juan José Faccio.
>
> *Análisis interpretativo de la voz y del gesto en la práctica de la percusión*. Proyecto final de máster (ESMuC 2014) de Rubén Martinez Orio.
>
> *un bruit de création*... (2013). Metamorphosis on Beethoven's keyboard exercises from the Kafka Miscellany and four unpublished. Tropos Ensemble: Luca Chiantore & David Ortolà.

4.4 Personalized technique

Many studies report on an individual process to develop technique or method in the context of performance, instrumental technique, postural health and stage experience. They possess a strong component of evaluation that qualifies the effects of practiced technique. Often researchers make personal adaptations of the methods used and consult with experts including those outside of the music context, like coaches in the area of sports. With this, they put into practice several methods to develop a certain technical skill on the instrument, stimulate memory, concentration or relaxation, combat stage fright, stress, physical disease or to enhance well-being during the performance experience (states of flow), etc. [12]

Generally, this work takes advantage of well-established knowledge in other areas. It doesn't usually provide major contributions; however, its implementation in the music world may be innovative. Autoethnographies are conducted on a regular basis to record evolution and productivity (Lopez-Cano and San Cristobal 2014, p. 135-167). These particular studies serve very well as a model for similar new experiences. In the medium term, a critical review of several studies may lead to new methods developed exclusively for the music field.

[11] Other examples of experimentation in art research are in López-Cano and San Cristóbal, 2014, p. 107, 173-183, 223.

[12] See the work *Flow: en busca del duende* by Reina Navarro (López-Cano e San Cristóbal 2014, 172).

5. The epistemic dimension: Produced knowledge

In most areas where art research in music performance is conducted, it is expected--as a result, both the production of an object of art (a distinguishing feature from other research models), and the construction of a discourse that, usually, takes on the form of a report, record or written work that is debated during a special presentation.[13] Just as the objects of study oscillate between processes and products of creative work, the resulting knowledge also seems to be distributed in various places, adopts several functions, is communicated, perceived and valued by distinctive means.

The written discourse may include documenting or registering the creative process, the initial research questions,[14] arguments, justifications, reflections, interpretations, inferences, reformulations and construction of new research questions, etc. In its entirety or at certain moments, it can adopt the characteristics of a scientific or normal academic writing. It is based on conceptual and abstract constructs that may well be taken from contemporary or classical theories legitimated by the academy, or may propose its own terms and concepts. Occasionally, it may be presented as a technical report or may even have a certain aesthetic dimension in itself (Lopez-Cano and San Cristobal 2014, p. 185-205). This discourse can theorize about a number of aspects of the resulting art object, but can also function as an informing and educating element. In the first case, the discourse, in relation to the art object (music performance), would be placed at an epistemic level of the theoretical constructs of the object of study with particular entity, logic and coherence. In the second case, it would be placed at an epistemic level of the object of study itself. It is common that, epistemologically, the discourse oscillates intermittently between these two levels.

The resulting art object is also part of the fabric of knowledge produced. On the one hand, it is the primary response (at least one of them) to the initial research questions. It is also the space where reflections and research actions are validated

[13] In some centers of teaching of the dramatic arts, this written work may be substituted by audiovisual recordings. The general norm is that the defense takes the form of communication or oral presentation, but in some places it is realized as a master class, workshop or lecture-recital.

[14] The "initial research question" is a technical concept that designates the principal research question or questions the work aims to answer. It does not necessarily refer to the first concerns that appear chronologically at the beginning of the process. See section 6 – Problems or questions of investigation (López-Cano and San Cristóbal, 2014, p. 69-82).

or denied; it can be considered an instance where knowledge is generated through aesthetic experience in its multiple interpretations. The object contains tacit knowledge. As stated by design theorists, it has a "sensorial density of incorporated knowledge of an elevated informative content that takes us places where science frequently has difficulty to capture and describe" (Brix, 2008). It embodies an intrinsic intelligence that becomes accessible only through aesthetic experience (Schacher, 2013). It is nonverbal knowledge, with a particular corporal coherence, whose emotional, analogical and intuitive aspects develop a fundamental role. But like all artistic proposals it is open to multiple interpretations and also presents a volatile and unpredictable character.

There is a third type of knowledge produced that can be difficult to communicate, either in the area of discourse, or in the aesthetic space itself: the set of corporal actions, skills and motor/kinetic experiences developed, discovered, learned and performed as a result of art research. Many artistic practices, such as dance, theater and musical performance, demand the development of these skills that in some situations are impossible to be described verbally. Although occasionally it supports the aesthetic qualities of the art object, like in phonograph records, they are not directly perceived and may not be present in the representation of the research results. Some of these motor actions have a direct impact on the production of musical sound (movements of effect), but others have functions that go from accompaniment to performance, with an evident expressive and artistic character (Lopez-Cano 2009; Godoy and Leman, 2010).

There are also a number of "mental actions" resistant to verbalization that most often are closely associated to a productive motor process of musical performance that, on occasions, constitute the only means of expression. I am referring to analyses that are not formalized or rationalized, or to the comprehension of the work based on intuition and on previous performance and listening experience. I also refer to certain performance decisions taken at the exact moment of reading the music and the solution of specific technical problems that were not reflected on, thought of, conscious or verbalized. These at times have a highly personal component and occupy a fundamental place in the proposed performance of a particular work.

As we have observed, the resulting knowledge of art research in music performance oscillates between the Greek *techné* and *episteme* and are distributed

between the space (written or oral), the object or artistic process produced and the motor performance that prepares and executes.

This epistemological distribution may be uneven in each case and it may be that the knowledge load concentrates or disappears in some elements more than others.

6. Conceptual knowledge versus non-conceptual knowledge

Before analyzing this particular aspect of knowledge it is necessary to clarify some terms. Frequently it is said that non-scientific activities, such as art, offer cognizant experiences of a non-conceptual nature, pre-linguistic, pre-reflective, implicit or tacit that resist being expressed by verbal means. These experiences contrast with the conceptual, reflective, verbal and explicit cognizant experiences present in science. I believe these binary oppositions are insufficient because they omit some essential elements for a more thorough analysis of the various modes of knowledge. The concepts are "the constituents of thoughts" and have a key role in "psychological processes such as categorization, inferences, memory, learning and decision-making" (Margolis and Laurence, 2014). Normally, when the subject of debate is conceptual thinking, only lexical concepts are considered: those that correspond to the "lexical items of natural languages" such as "bird", "single", etc. It is quite "common to think that the words in natural languages have their meanings derived from the concepts used to express them" (Laurence and Margolis, 1999). However, the process of elaborating concepts consider many other mechanisms; and the meaning of other elements, including words, may be more driven by specific processes and uses than its etymology.

According to the above definition, conceptual thinking relates to the process of categorization and inference, but these can occur in several ways, including situations that are not necessarily mediated by lexical conceptualization and verbal expression. Well known for example, are studies on color categorization by Eleanor Rosch, where she demonstrated that although the Dani people from New Guinea only have two words for all colors, they were still capable of systematically recognizing through processes of categorizing by prototypes, color variants for which there are no verbal terms (Heider, 1972; Heider and Olivier, 1972; Varela,

Thompson and Rosch, 1992: 197-201.). People who love music with no training in music theory are capable of categorizing and recognizing different types of cadences, even without knowing their technical names. Musicians can categorize rhythmic patterns, recognize them and extract them from the musical discourse without needing a specific name for each one (Desain and Honing 2003). They can translate patterns into musical notation after analyzing them, but this is a different cognitive task; recognition doesn't depend on it. A performer organizes categories of gestures, tempos, types and degrees of intensity, or amplitude of movements. The frontier between non-verbal categories of a non-verbal process, such as color and gesture, may be defused and the criteria for identification, quite unstable. But this is also categorizing and elaborating mental schemes, scripts or types of knowledge (Lopez-Cano, 2004, p. 422-480). It is part of non-lexical conceptual thinking and cognition.

Inference is a logical procedure that begins with established assumptions (perceived or previously known) to extract a conclusion through logical operations that act by induction, deduction and abduction. However, there are processes to generate conclusions based on prior knowledge of the world through intuitive conjecture, analogical patterns or metaphorical processes. Well known are the theories of George Lakoff and Mark Johnson, under which many complex and abstract phenomena are conceptualized by means of metaphorical projections of embodied mental schemes (*image schemes*) formed by primary motor experiences characterized by not being purposeful, pre-verbal or pre-rational (Johnson, 1987; Lakoff and Johnson 1998; Lakoff, 1987; Johnson, 2007). In this way we can conceptualize phenomena as abstract as "time" as if it were an object that could be manipulated like "lost", "gained", "robbed", "given as a gift", "took", etc. The theories of *image schemes* and its *metaphorical projection* have been employed to explain what we do with our music experience. In normal phenomena, listening to a musical event *X* we can infer the following event Y, generating strong expectations, which commonly rely on some of these schemes (Lopez-Cano, 2003; Peñalba, 2005).

On the other hand, it is well known that inferences made by most of the humanities such as philosophy, history, philology and social sciences such as anthropology, are not based on stable logical operations, or well defined and capable of being logically reconstructed, step-by-step by classic logical operations. These areas act

on performances based on subjective and emotional intelligence, by means of empathy and hermeneutical principles that guide the performance. Among these, we can mention: the hermeneutic circle, the criteria of authority and tradition, the economy of performance (the simplest performance is best), the consistency of the same principle of performance applied in other cases, the persuasive power of the discourse on which one argues, etc. (Mardones, 1991). Many of these criteria are considered by classic logic as "fallacies", but the hard sciences also make use of them occasionally.

Thus, we observed that binary oppositions such as conceptual/non-conceptual, lack meaning and conceal a great variety of modes of thought and appropriation of knowledge. It is necessary to distinguish between lexical conceptualization and other types of conceptualization, to accept that inference is not exhausted in processes of Aristotelian logic.[15] With this in mind, we will examine the three major gnostic areas that characterize the production of knowledge in art research in music performance: 1) the formal, rational, and logical knowledge and understanding common to all areas of academic-university research; 2) the procedural knowledge and understanding associated to practice and 3) the intuitive, sensitive, tactic and non-verbal knowledge and understanding. These areas are manifest in three products of art research: a) the written or spoken word; b) the process of generating the performance and c) the object of art, the interpretation, performance or recording. Each epistemological area establishes diverse relationships with each product. Again, these areas are closely associated among themselves. In reality they intertwine and merge in multiple ways. Next, we will conduct a separate analysis for purely educational reasons.

[15] Or through what Castoriadis calls ensidic logic (Castoriadis, 1999, p. 273).

7. Formal knowledge

Formal knowledge deals with propositional knowledge, expressed by verbal means and obtained by means of reflection, analysis and performance. [16] It is rational and logical, but, as mentioned earlier, it is also based on not entirely logical inferences, based on performance, empathy, analogy, metaphor and hermeneutics. Its common trait reveals that it is discursive in nature and prioritizes lexical conceptualization. This type of knowledge is fundamentally conveyed through *discourse*. It frequently adopts a format of academic knowledge. It employs the terminology and common concepts of academia or proposes other original concepts. When art research addresses common problems with musicology or other academic disciplines, it is easier to produce this kind of knowledge. In some cases, a propositional conceptualization may provide the same depth as those of a theorist. In others, interest lies elsewhere, an interest for distinct knowledge. In some cases, reflection is limited. This can happen because of the author's background and expertise or by his/her interests for knowledge.

Propositional thought can function as *practice-based knowledge*: works on music performance usually critically contemplate their own performance practice. This provides intellectual food for thought. It can also *be practice-driven knowledge*: the conceptualization does not aim for a theoretical understanding of the phenomenon studied, but rather to generate resources for practice or action. Here the lexical conceptualizations or inferences are limited and truncated, since they point to specific actions and are co-determined by these same actions, so that the argumentative power falls upon its effectiveness. That which was verbalized, forms only a part of the knowledge which is complemented by the procedural knowledge manifested in actions. Discourse is a predisposition to action.

The verbalization of *practice-embedded knowledge* is more complex. When actions cannot be determined by lexical conceptual thought because it is too difficult to distinguish, describe, or label them with a name or specific property, a variety of other strategies may be adopted. These include specifying intent or action goals: what kind of sound, musical emotion or body experience is hoped to be produced by a particular action? They can also describe, without being further analyzed, feelings and thoughts linked to actions or motor routines. In some cases it is

[16] Borgdorff calls it *performance perspective* (Borgdorff, 2012, p. 38).

possible to formalize a detailed experimental procedure for various actions and propose to choose among them the best solution to a technical or musical problem. In these cases it is possible to well describe details of the trial, its evaluation criteria and results. It is also possible to use some of the qualities of the action, such as the difficulties and possibilities offered. As we observe, in these cases, the discourse touches on knowledge without verbalizing it directly.

However, it is possible to represent or employ propositional knowledge in artistic actions. There are works in which the musicological, critical, aesthetic or historical discourse are reread to extract from them performance indications, to infer practical and performance actions, putting aside other types of valuation or information.[17] Finally, propositional knowledge also has severe limitations of expression in relation to the tacit knowledge embedded in the artistic object. Commonly, art research in music performance manifests itself in constructing explicit personal poetics, where the author puts into discourse some of this aesthetic knowledge when expressing what he/she pretends to raise with the creative project, or analyze what was awakened in the audience through hermeneutic performances, interviews, surveys or focus groups.

8. Practice-based knowledge

Practice-based knowledge is a functional-processual knowledge; it is the "know how" or "how to". It is knowledge *based on experience* and manifested in practice. Therefore, it is knowledge in action.[18] It is based on reflection through action or *practice* when it is the object-space of reflection, leading to the various types of knowledge, including propositional knowledge; *practice-directed knowledge*, when cognizant structures are not self-sufficient and must be complemented with some kind of action; or *practice-embedded knowledge*, when knowledge is composed of actions with little or no chance of being represented by other means. Music performance is embodied in macro- and micro-gestural actions developed by the

[17] See *The reception of 19th century opera and implications for today's performers* by Massimo Zicari (López-Cano and San Cristóbal, 2014, p. 88-89) or *Viajeros románticos en el flamenco* de Isabelle Laudenbach (López-Cano and San Cristóbal, 2014, p. 92).

[18] Similar to what Borgdorff calls performative perspective (Borgdorff, 2012, p. 38) although he attributes to it some distinct elements.

performer to resolve technical issues of a piece to achieve his/her performance expectations. But also in certain "mental" activities that cannot be explained by organized reflection or entirely expressed through words, such as certain performance decisions, analysis or understanding of the pieces performed that proceed in an intuitive manner and loosely organized from a logical stand point.[19]

Performance development is associated to the relationship, conscious or not, of the musician with his/her own body, through body image schemes, a sound image of the result hoped to be achieved or also, to the emotional-expressive state that is wished to be communicated. In a singular manner, it offers resistance to rationalization and is elusive to lexical conceptualization, therefore because of this, in the practice of teaching, it is customary to utilize ostensible methods to report it[20]: the more experienced professor or musician demonstrate to the less experienced student or musician the way it must be done and this person learns through imitation. Often, motor routines are verbalized, the mental intentions that trigger the sensations or kinesthetics that accompany it, etc. Truncated verbalization is usually accompanied by motor actions on the instrument or dramatized gestures trying to indicate what is being attempted to achieve.

"Inferences" become the way of producing motor knowledge in general through trial-error. When the expected results are achieved the appropriate gesture is internalized through repetition.[21] There are, however, processes of body categorization. For example, to perform a repetitive task, such as a specific attack on an instrument, one can distinguish between different types of similar movements that may be organized in scales or degrees according to the intensity or direction of the gesture, the qualities of the resulting sound or by the expressiveness obtained. Normally, the elements of these scales are not clearly defined nor its delimitations clear. This categorization can be ephemeral, that is, it functions at the moment it is created and may not be fixed or permanently represented and established. Frequently, logical inferences and categorizations are

[19] About the components and characteristics of intuitive knowledge see (Hogarth 2002). A more detailed analysis is essential on what knowledge is developed in artistic research.

[20] Remember that ostentation is a way of thinking that communicates something known by demonstrating an example of it. To the question, “What is a pencil?”, we answer by showing an example of it with using any type of technical definition.

[21] The methodology of art research encourages the formalization of these processes by verbally defining the action’s objectives or expected results, its record and analysis and comparison by diverse means of various options of actions (López-Cano e San Cristóbal, 2014, p. 123-183).

incomplete at a mental level and only complete themselves by the action itself: they are two pieces of the same puzzle.

In which way is processual knowledge related to discursive elements that produce art research? As noted, a part of the world of actions may be represented by propositional knowledge (or better: *action-based propositional knowledge*). At times, the same music practice blends, contradicts or tests the propositional knowledge generated during another phase of the research. In other cases, the lexical conceptualizations are limited and only acquire meaning when complemented with certain actions (*action-directed propositional knowledge*). In this way, indicative associations are created between verbal constructions and actions. In many cases, verbal constructions of a text or oral presentation are accompanied by images, audio visual recordings or live performances of such actions. It can even be represented by audiovisual media with voice-over or subtitles.

A frequent strategy aims to describe general actions in report format (Lopez-Cano and San Cristobal, 2014, p. 193-194). This type of discourse may not establish concepts for each important action, it simply describes roughly what was done and the personal results achieved. The development can be communicated through graphics or statistics with data systematically collected throughout the process. There are works where verbal constructions deal with explaining specific exercises and the reader is invited to repeat these movements to experience certain body or musical sensations that are those that truly communicate the knowledge. On certain occasions, a written strategy is employed that is known as a *confessional text* which expresses the world of personal and non-transferable meaning that emerges from the interpretation of an experience without being analyzed or interpreted with depth (Lopez-Cano and San Cristobal, 2014, p. 203). There are other elements that help in the elaboration of discourse on this procedural knowledge. This is nonverbal discoursing as the schematics of forms and structures of works or performance notes on the scores. Often they are not explicit, but have enough capacity to indicate actions and bring back performance intentions. In these cases the author is asked to expand its graphics, enrich them, give them more depth, add information revealed in them and increase their complexity. From them one can create a map of their performance intentions, conceptualizing the different levels and types of dynamics, articulation or phrasing that will be used

and grouped again into categories. A video can also be prepared where images of notations and schemes can alternate or overlap the recording of actions during the performance. One can also film himself/herself, performing actions from different angles and comparing them to their notations on the score.

In regards to intuitive, subjective and personalized analysis and understanding of music, they may be put in the verbal and non-verbal discourse through the reflection or description of some of the elements taken into account for this comprehension, such as critical texts, poems, other musical or non-musical works where inter-textual relationships can be detected with the works analyzed, etc.[22] Comprehension does not appear explicitly in the text, but instead the sources and some of its verbalized thoughts.

9. Knowledge linked to the sensitive and intuitive

Art research produces a significant amount of insightful, implicit and tacit knowledge resistant to rationale and having a distinct, emotional and intuitive coherence. It is embodied in the resulting art object[23] and can be accessed through analysis or the aesthetic experience.[24] As noted, processual knowledge can deal with some of the intentions or results of the proposed aesthetic experience. [25] However, there are many of these elements that are irreducible to language. Its nature is not lexical-conceptual, although it can be expressed via inter-semiotic translation through visual, gestural or narrative metaphors, screams and

[22] The case of *El violoncello en imágenes* by Marta Requena (López-Cano and San Cristóbal, 2014, p. 214).

[23] As we have observed, *processual knowledge* can also produce this type of knowledge. We must remember that some performances are not meant to be the place for fixating knowledge, but spaces for experimentation where knowledge is produced. See the project *Tangencias* (Trends) by Pedro *González (Lopez-Cano and San Cristobal, 2014, p. 114, 117, 171, 176, 179, 181). Tangencias* (ESMUC 2014) by Pedro Gonzalez. Available in: https://youtu.be/I6dUjl1ths4. Accessed on: May 28, 2015.

[24] Often the analysis gives way to *propositional knowledge.* If the analysis is more immediate and intuitive it could generate *processual knowledge*. The analysis also produces *implicit knowledge* at other levels of analytical experience.

[25] Regarding *discursive knowledge* or actions, artistic objects can exemplify, broaden, complement, blend or even negate (deliberately or unintentionally), verbal or practical knowledge.

interjections, gutturals, etc., that better transmits the *intentions* of that which is desired to be expressed or said than scientific content or references.

It is empathic knowledge with strong roots in beliefs. Its conceptualization usually refers to emotional/corporal impact of an experience that is frequently intuitive or sensitive. The metaphorical projection of kinetic*, body image schemes* is common and allows us to describe the music as a body in movement. The "inferences", sometimes, function through inter-textual networks that evoke other works of art to give meaning to the artwork in question. This knowledge usually only occurs in light of the art work itself, therefore, more than inferential, its potential content (non-verbal, emotive and corporal) has an *intentional* nature to the object. This intentionality allows one to connect the object to the purpose of the research, therefore, one must remember that art work, along with scientific theories, belong to the epistemic third world proposed by Karl Popper (1974, p. 106): it can become independent of the original intentions of the authors and generate multiple interpretations and meanings. Because of this, what we are interested in here are not artistic objects as autonomous works, but exclusively in relation to the research project related to the *discourse and actions* produced during the process. The aesthetic experience may be a cognizant experience, but not all of it can be related to the argument of the research.

How could one elaborate a discourse on the knowledge contained or developed by the art object? There are elements that surround musical performance that are easily verbalizable, such as historical contexts, its background, its predecessors, traditions of where it belongs, history, theory, etc. A very common strategy is to analyze *posteriori* the musical performance. One can also speak on the intention of the performance objectives: what type of sound one hopes to produce, what emotions or impressions one tries to evoke from the public. An element of formalizing knowledge developed through performance consists of an evaluation conducted by one or more persons through interviews, dialogs, surveys or focus groups.[26] It is very common to find reflections on the element that integrates and

[26] See the project *Open Artist & Dear Audience* by Anu Vehviläinen (Polyphonia Research Working Group 2010, p 30; Lopez-Cano and San Cristobal, 2014, p 121) and The Piano Sonata in Contemporary Music: A Practical and Analytical Study by Alessandro Cervino (Polyphonia Research Working Group 2010, p 60; Lopez-Cano and San Cristobal, 2014, p 132-133).

will be used in the performance or some historical information as inspiration for a performance. Sometimes interviews and dialogues with other artists on topics that interest these artists are used, placed, directed and communicated through their own interests, which sometimes can be very distant from those of the theorists.

In instances where some aspects of the resulting performance cannot be verbalized, overt means may be used. For example, a comparison to other performances or inter-semiotics exegesis where other artistic objects collaborate to understand the performance. Sometimes the performance itself can function as a place for transmitting propositional knowledge as in those cases where images or texts are projected during the performance.[27] Another way to represent tacit knowledge of the artistic instance is by filming the reactions of the audience at the time of the performance. Short, quick interviews can be included. A new contextualization for a proposed performance can also be used: photos, recordings, and films of the performance are merged and divided into visual audio formats where text or voice is added that expresses literal or metaphoric, theoretical, descriptive or poetic content—that approaches asymptotically, without playing the content we want to communicate, but impossible to explicitly say. We can do the reverse exercise: rather than start with the performance, we can start with a propositional discourse where interventions are added of fragments of the performance that function as arguments. Verbal or audiovisual arguments can be built that go beyond theoretical constructs or parallel objects can be created that collaborate in the experiment of comparing the different modes of performing the same piece.

[27] See the project *Requiem por la muerte del yo artist* by Adrián Blanco (Lopez-Cano and San Cristobal, 2014, p 191-192) or *Merging cultures: Manga and Classical music* by Misaki Yamada (Lopez-Cano and San Cristóbal, 2014 p. 214). *Requiem por la muerte del yo artist.* A final graduating project (ESMUC 2013) by Adrián Blanco (a fragment of a video track--with audio guide—projected during a live performance). Available in: https://youtu.be/cWZMF16EytI. Accessed on: May 28, 2015.

10. Conclusions

Art research in music performance is not generating new knowledge of the world, however, it does have the potential to effect profound transformation in regards to the professional field of music. The biggest challenge it proposes is in regards to the discourse and production of knowledge accepted by the academy. First, the examples of cases mentioned address an academic activity that continually oscillates between technical work and a more elaborate intellectual speculation.

On the other hand, when continuously faced with the need to express non-propositional knowledge, these cases open up opportunities to experience emerging gnosiological formats and modes. The creativity that practitioners of this type of research are supposed to have presents new challenges in relation to audiovisual and digital arguments, continuously alternating with more conventional modes. Certainly they will create, over time, their own protocols of multimedia writing and academic rituals. Soon we will learn if this research model solves or deepens some aspect of the contemporary crisis.

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