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Music(s), Musicology and Science: towards an Interscience Network

The Example of the Deaf Musical Experience

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Abstract. This contribution traces the history of musicology in order to set its object. The history of the discipline is clear: born as historical musicology, it flourished as an interdisciplinary discipline over the second half of the 20th century, with the development of new musicology and critical musicology. Defining the scope of musicology, however, is challenging, since it encompasses various aspects of music: music as sound, as a historical fact, as text. Music, therefore, oscillates between natural sciences, humanities, philosophy, and aesthetics, shifting of identity, between a quantifiable sound, the meaningful object of miscellaneous debates, and the purpose of boundless interpretations. These observations induce contemporary musicologists to elaborate an intersciences project which is exposed in the present paper. To concretize our remarks, we will take as an interscientific musicological object a specific situation: the Deaf musical experience.

Keywords: musicology; intersciences; interdisciplinarity; musical reality; Deaf musical experience

Introduction

Since the beginning of the 21st century, the development of digital technologies, *open source* strategies, free access and democratization of softwares has given rise to a new sort of dialogue between artistic creation, science, and technology. This rapprochement is also the subject of numerous works and academic events¹.

The relationship between music and science arose early compared to other arts, in the 1950s, with the emergence of concrete and electroacoustic music, and a generation of composers-scientists such as Pierre Schaeffer, Karlheinz Stockhausen, and Iannis

¹ For instance, a symposium entitled "Arts and Sciences: intersecting views" will take place on October, 26th and 27th, 2017, in Liege (Belgium), <http://www.gaphe.ulg.ac.be/ArtCol2017/index.html> [accessed: 07/2016]

Xenakis. At the same time, musicology, leaving the historical field, widened its scope to human and social sciences. The composer Tod Machover emphasized in 1985 that the study of the relations between music and sciences:

“[...] implies a musical reflection that can be oriented towards two directions: firstly towards other disciplines that may offer tools, models or materials (literally or by analogy), useful for musical expression; secondly, towards a reflection on purely musical materials, forms, processes and notations that can be directly applied to the works themselves.”² [1, p. 13]

In the present paper, we will consider more specifically the first direction proposed by Machover, namely the opening of musicology to other disciplines. Primarily, we will consider the bases and specificities of an interdisciplinary musicological thought; an interscience model is subsequently presented in that respect, which will be based on a singular musicological situation, the musical experience of the Deaf persons; we will examine in conclusion the epistemological foundations and contributions of such an orientation.

There is no science, however, without delimitation of its object of investigation. We shall, therefore, begin with a simple question: *what is music?*

1 Did You Say “Music(s)”?

[...] it is not just the fact that music could be the subject of a scientific activity which disturbs. It is also the great diversity of the sound facts which may be described with the word “music” which surprises, and the large number of fields who are studied by the musicology to better understand how the music works, sorry, musics.³ [2, p. 9]

In his article (« Les conceptions de l’histoire de la musique », Philippe Vendrix underlines a major difficulty of musicology, namely, “the definition of its object of study” [3, pp. 644-645]. Indeed, the history of the discipline, examined in great detail in several meta-musicological works, is rather clear: musicology was first strictly historical, and subsequently diversified into interdisciplinarity, “new musicology” and critical musicology over the second half of the 20th century. Because, *a priori*, “musicology does not have a specific object” [4, p. 121]. This will remain only an *a priori*, who finds in the deployment of more than a century of musicological practices,

²By respect for the authors and their words, we will systematically propose the original text of the quotation. Original text: « [...] implique une réflexion musicale qui peut être orientée dans deux directions : premièrement vers d’autres disciplines qui semblent offrir des outils, des modèles ou des matériaux (soit littéralement, soit par analogie), utiles à l’expression musicale ; deuxièmement vers une réflexion sur des matériaux, des formes, des procédés et des notations purement musicaux qui peut être directement mise en pratique dans des œuvres. »

³ Original text: « [...] ce n’est pas seulement le fait que la musique puisse faire l’objet d’une activité scientifique qui dérange. C’est aussi la grande diversité des faits sonores que l’on désigne par le mot « musique » qui étonne, et le grand nombre de domaines que la musicologie étudie pour mieux comprendre comment fonctionne la musique, pardon, les musiques. »

the culmination *a posteriori* of objective considerations. However, the very object of the discipline seems difficult to determine. Following the integration into the field of musicology of disciplines such as psychology, linguistics or cognitive sciences and especially in view of their recent evolutions (mediationist and/or interactionist approaches), the very term of *object* does not seem perfectly adequate, for it is too closely related to exact sciences, or philosophical determinism. Yet we will venture here to question the object of musicology again, to find out possibly what constitutes its subject of study.

*

Margaret Bent recalls us that “music is, in fact, the only fine art that has adopted, in English, as in most European languages, the suffix *-logy* to designate the knowledge associated with it [...]”⁴ [5, p. 612]. Musicology would, therefore, be the discourse on music. Music is then its object and musicology, the scientific study of this object, reintroducing here the long-standing idea of a *musica practica* who would interest a *musica speculativa* [6].

This first distinction seems very simple, and yet it does not take into account the very complexity of the *object-music*, fundamentally paradoxical, straddling at least three “domains”:

- **Music as “sound”:** physical and acoustic object, which is the subject of research in Music Theory, Acoustics or Psychology of perception.
- **Music as a “historical fact” (“context”):** works, styles, and methods of composition which, as of the end of the 18th century, were the subject of comparative, stylistic or historical research.
- **Music as “text” (in the sense of Roland Barthes):** the interaction between works, practices, intentions, and situations: anthropological fact, expression and meaning that is the subject of interdisciplinary research: semiotics, sociology, anthropology, philosophy or aesthetics.

⁴ Original text: « *musique est en fait le seul des beaux-arts qui ait adopté, en anglais, comme dans la plupart des langues européennes, le suffixe -logie pour désigner les savoirs qui lui sont associés [...]* »

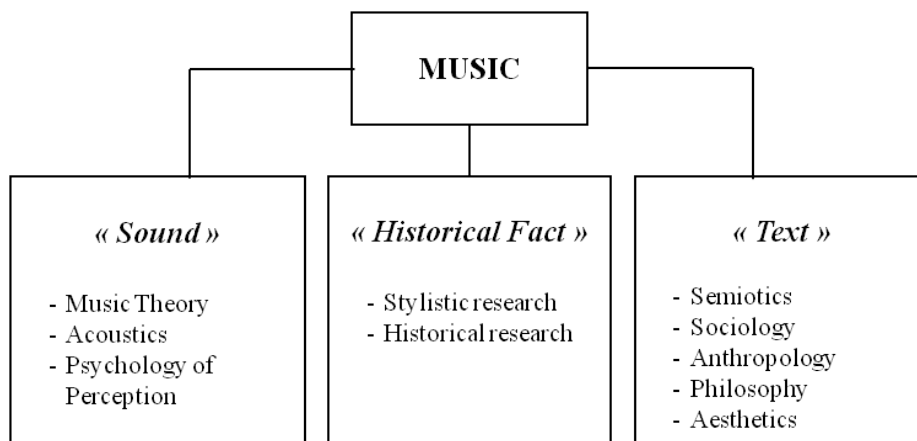


Fig. 1. 3 “domains” of musicology

The first branch – the earliest – characterizes a musicology which draws its roots from Pythagorean theories, cosmology, and ancient cosmogonies, alike the natural sciences. In the Middle Ages, let us recall that music was part of the Quadrivium (arithmetic, music, geometry, astronomy). The second approach is based on the model of the historical and literary sciences, while the third is more recent, following the *linguistic turn* of the 1960s and the profound change in the human and social sciences.

These above-mentioned domains constitute, at present, the main branches of musicology as a contemporary science of music. In 1885, the musicologist Guido Adler proposed moreover, in his demarcation project of the dimensions of the *musikwissenschaft*, to make a clear distinction between historical musicology and so-called systematic musicology [7]. Adler was starting notably his founding article “The Scope, Method, and Aim of Musicology”⁵ with: “Musicology originated simultaneously with the art of organising tones”⁶ [7, p. 5]. Poetical wording which was already making of the *object-music* - the sounding aspect of music – the source of musicological investigation, not only object but also subject of musicology, understood with Adler that “The methodology of musicological research depends on the nature of the subject under investigation”⁷ [7, p. 15]. We will come back to this, however, we can already specify that, of the distinction proposed by Adler, persists in the English vocabulary - and more particularly in American musicology - two orientations: the term “musicology” remains mainly associated with historical approaches, whereas the prospects strictly systematic are mostly brought together

⁵ Original text: “Umfang, Methode und Ziel der Musikwissenschaft”, translated and commented by Erica Mugglestone, in “Yearbook for Traditional Music”, Vol. 13 (1981), pp. 1-21. Bibliographic references mentioned in this text correspond to the original article of Guido Adler. English translations in text are borrowed, unless specified, from Erica Mugglestone.

⁶ Original text: “Die Musikwissenschaft entstand gleichzeitig mit der Tonkunst”.

⁷ Original text: “Die Methode der musikwissenschaftlichen Forschung richtet sich nach der Art des zu Erforschenden”.

under the global denomination “music theory”. This distinction disappears in French language (but also in other languages), where *musicology* is sometimes “Historic” or sometimes “Analytic” but maintains nevertheless in its general consideration a real form of unicity and remains still in its exclusive designation: “musicology”. It is in this sense that we will talk more specially in the continuation of this text of “musicological science”, in order to overcome the possible confusion inherent in term “musicology” and in its translation - but also to consider more specifically the Germanic origins of the discipline: *Musikwissenschaft* literally “science of music”. (Furthermore, Adler used in his text the term “Musikologie” to describe what he calls “comparative musicology, which envisages to compare the sound products, in particular the popular songs of various peoples, countries, and territories, with an ethnographic purpose, to group and put them in order according to their different qualities”⁸ [7, p. 14]).

*

Thus, as in natural sciences, the first theories and philosophies of music sought to establish common, permanent and universal laws, inserting sound into the world order (modes, scales, resonances of sound bodies). As early as 1949, Swiss musicologist Jacques Handschin suggests, however, that this analogy between the natural sciences and musicology is based on a certain vision of music which tends to reduce in an abstract way the musical reality [8]. In 2001, Hubert Reeves responds to Handschin, arguing that, undeniably – and whatever one thinks about it – music and its representation played a crucial role in the birth of science: “By studying the relationships between sounds and the length of strings, Pythagoras had the intuition of the importance of numbers in the explanation of the real world”⁹ [9, p. 8].

There was never a clear line, therefore, defining the object of musicology, and music has always oscillated between natural, human, philosophical and aesthetic sciences. Music can be observed as a measurable, quantifiable sound or as a signifying entity, leaving the door open to multiple debates and interpretations. Music appears as versatile art, diversified by contemporary practices and means of productions, whether written, historically informed, traditional, from an oral tradition, popular, modern, improvised and more recently, inter/multi-media. In this sense, we can consider with Jean-Marc Warszawski, that:

“Music is not a natural object, it is not even an object. It is produced by members of a humanity in progress. Everything, in music, emerges of human decisions. Today, the inventory which can be done of the diversity with which “music” is inserted into social practices, with which it is produced, broadcast,

⁸ Original text: “[...] die Musikologie, d.i. die vergleichende Musikwissenschaft, die sich zur Aufgabe macht, die Tonproducte, insbesondere die Volksgesänge verschiedener Völker, Länder and Territorien behufs ethnographischer Zwecke zu vergleichen und nach der Verschiedenheit ihrer Beschaffenheit zu gruppieren und sondern.”

⁹ French version of this text: « En étudiant les relations entre les sons et la longueur des cordes vibrantes, Pythagore a eu l'intuition de l'importance des nombres dans l'explication du monde réel »

received, from the point of view of personnel and technical means, institutions, reproductions, does not determine, out of social context, a matter sufficiently homogeneous and autonomous for objectify a positive specific science, but summons many fields of knowledge [...].”¹⁰ [4, p. 129]

These forms of creation widen the scope of traditional musicological knowledge and require the musicologist to cope with polymorphous realities.

2 For a Musicological Science

The object of musicological science, as we see, overflows on every side and cannot be defined as a fixed instance insofar as any diversification of knowledge objects leads to a diversification of this knowledge [10,11]. These observations reveal the complex territory of musicology and its main actors (historians, analysts, composers, interpreters, but also physicists, acousticians, psychologists, historians, analysts, hermeneuticists, aestheticians, philosophers, sociologists, semioticians, doctors, neuroscientists, etc...), and orientate contemporary musicological research towards the development of a true intersciences project [10].

2.1 Of a Systematic Musicology [...]

Previously, we mentioned the initiative of one of the founders of musicology as scientific discipline, that of Guido Adler, who proposed to differentiate in the studies of music the historical perspectives of those that he qualifies of systematic musicology, based on the principle that “the laws of art which have emerged from the historical development as the highest [...] are systematically organized”¹¹ [7, p. 11]. For Adler, the musicological enterprise had to interrogate (historical) contexts, but also to focus on a critical and speculative study of music. In his presentation of the new-found *Musikwissenschaft*, the Austrian musicologist proposed a theoretical organization of the discipline based on two main lines which he considered essentials for a real and global determination of scientific characteristics of the musicological project. He proposed in his article of 1885 a schematic representation which specified the different dimensions and perspectives of the musicological science.

¹⁰ Original text: « *La musique n'est pas un objet naturel, elle n'est pas même un objet. Elle est produite par les membres d'une humanité en devenir. Tout, en musique, ressort de décisions humaines. L'inventaire qu'on peut faire aujourd'hui de la diversité avec laquelle « la musique » s'insère dans les pratiques sociales, avec laquelle elle est produite, diffusée, reçue, tant du point de vue des personnels que des moyens techniques, des institutions, de la reproduction, ne permet pas de cerner une matière suffisamment homogène, autonome, hors contexte social, pour objectiver une science spécifique positive, mais, convoque de nombreux champs de connaissances, [...]* »

¹¹ Original text: “*Hier warden die Kunstgesetze, die sich aus der geschichtlichen Entwicklung als zu höchst stehend [...] ergeben, systematisch geordnet*” [we translate]

I. HISTORICAL
(History of music according to epochs, peoples, empires, nations, regions, cities, schools of art, artists).

| | | | |
|--------------------------------------|---|--|------------------------------------|
| A. Musical palaeography (notations). | B. Basic historical categories (Grouping of musical forms). | C. Historical sequence of laws. 1. As they are presented in the works of art of every epoch. 2. As taught by the theoreticians of the age in question. 3. Ways of practising art. | D. History of musical instruments. |
| Auxiliary sciences: | | General History with Palaeography, Chronology, Diplomatics, Bibliography, Library and Archival Science. History of Literature and Philology. Liturgical History. History of Mimetic Arts and Dance. Biographies of composers, Statistics of musical associations, institutes and performances. | |

II. SYSTEMATIC
(Establishing of the highest laws in the individual branches of tonal art).

| | | | |
|--|---|---|---|
| A. Investigation and founding of these laws in: 1. Harmony (tonal). 2. Rhythm (temporal). 3. Melody Coherence ²⁵ of tonal & temporal. | B. Aesthetics of tonal art. 1. Comparison and evaluation of these laws and their relation to the perceiving subjects, with respect to the ascertaining of the criteria of the musically beautiful. 2. The complex of directly and indirectly related questions. | C. Musical paedagogics and didactics (The compilation of these laws with respect to teaching purposes). 1. Scales. 2. Theory of harmony. 3. Counterpoint. 4. Theory of composition. 5. Orchestration. 6. Vocal & instrumental teaching methods. | D. "Musicology" (Examination and comparison for ethnographic purposes). |
| Auxiliary sciences: | | Acoustics and mathematics. Physiology (tone sensation). Psychology (tone perception, tone-judgement, tone-feeling). Logic (musical thinking). Grammar, metrics, and poetry. Paedagogics. Aesthetics, etc. | |

Fig. 2. Adler's domains of the musicological science [12, p. 14-15]

By distinguishing the historic and systematic considerations, Adler integrated in this latter musicological posture a complex of “auxiliary sciences” [7, p. 14] which unified already our first and third branches previously evoked into an unique orientation: acoustics, music theory, pedagogy, sociology, psychology,... so many analytic perspectives which gave to think the plurality of the real object of the musicological science and its profoundly interscientific nature. Because if the musicological object is complicate to define, its epistemological foundations appear in a multidisciplinary network which formalizes the scientific posture of the musicologist. Thus, music presents itself at the intersection of sciences, disciplines and technologies, and its objectal nature reveals in this sense a multitude of facets which form as many potential ways forward for its specific study.

If this duality inherent in the musicological science finds its meaning in the contextual dimension given to the music itself – origin or product of context? - it remains true that domains which compose it formalize the unity of our discipline. This one, in its various methods, technics and ambitions to approach the *object-music* like a context or the *context-music* like object, draws on comprehensive strategies requiring diversified and expanded prospects which find fundamentally a place in both principal orientations which constitute the vast field of musicology.

2.2 [...] to an Intersciences Project

It is according to this perspective that, as early as 1992, the French musicologist Bernard Vecchione developed an intersciences project where sciences and music technologies formed a network of collaborative points of view, structured as an open space (Fig. 3).

This project implies the participation of critical, historical, semiotic, computer and cognitive sciences in the mutual understanding of music. The contribution of critical sciences (mainly hermeneutics) is central. Through their overarching eye, they help overcoming with diversity, or even scientific dispersion, to which the interdisciplinary study of music may lead. The hermeneutical approach allows articulating interscientific relations simultaneously involved in each of the two planes of musical reality and musicological reality [10]. This network between sciences constitutes an open model, its integration of other disciplines is imposed by the evolution of our discourse about the world and about music, but also by the evolution of musical practices. Its challenge is “the preservation of local fields of research”¹² [10, p. 281] but also the desire to understand the problem of the functional articulation which, since the 1970s, forms our musical horizons.

¹² Original text: « *la préservation des champs de recherche locaux* »

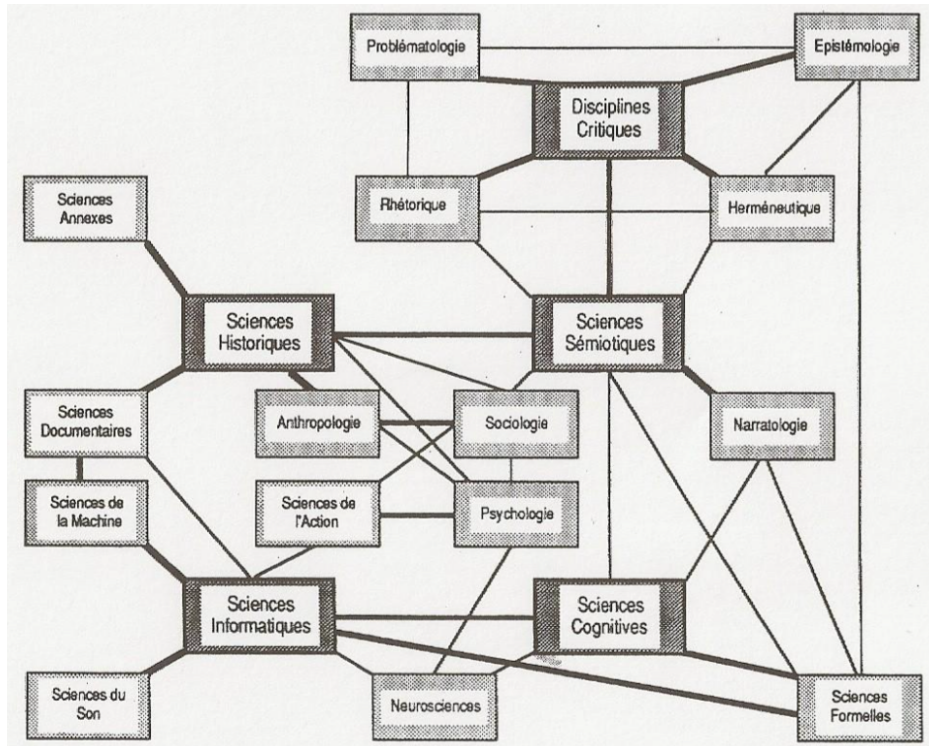


Fig. 3. Network between sciences and technologies [10, p. 294]

In view of these explorations, and as Vecchione emphasizes, musicology is considered on its most general level, that is to say, from an anthropologic point of view:

“as a discipline concerned with all aspects of knowledge about music (intellectual, practical, sensitive), regardless of their type (scientific, technological, philosophical) and regardless of the aspects of music studied (works or practice, sound or spectrogram, existing music or music to come, in project, in progress, in process...). This definition goes in the direction of the history of the discipline and matches, if not with the classical meanings of the term, at least with the nature of the object on which musicology questions itself: the reality of music in civilizations, its nature, its function.”¹³ [10, p. 281-282]

¹³ Original text: « *comme discipline que concerne l'ensemble de la question de l'élaboration des connaissances sur la musique, quelles que soient ces connaissances (intellectuelles, pratiques, sensibles), quels que soient leurs types (scientifiques, technologiques, philosophiques) et quels que soient les aspects de la musique étudiés (œuvres ou activités, son ou partitogrammes, musiques déjà existantes ou musiques*

The theorization of the musicological field and the acknowledgment of its fundamental diversity, as proposed by Vecchione, lead to the reformulation of the musical object, or even to its total reconsideration. Vecchione will use the term “musical reality”¹⁴ to consider this weaving to which refers the fundamentally anthropological nature of musical works and activities. Vecchione writes:

“As subject of musicology, musical reality is to be considered as a complex anthropological reality, made up of works and activities, all marked historically but also socially, culturally, psychologically and not only within civilizations where these activities take place, but also relatively to the social groups, and to the individuals who played within these groups a key role in the establishment of this reality: production, interpretation (updating, perennality, etc.), perception...”¹⁵ [10, p. 282]

To conceive “musical reality” as the object of musicology allows an ecological approach, exempt from all forms of reductionism, and allows embracing its main components, namely works and activities (currently known as practices). For Bernard Vecchione, it is the music itself that guides the research and silently accomplishes its power to relate, in the light of its own sonorous and temporal deployment, connected with bodies in action and musical gestures. It will be noted that this proposal is related to the deep mutations that experienced the cognitive sciences since the end of the last century, with, for example, the deployment of works of Francisco Varela on cognition (action/knowledge polarity, enactment, embodied knowledge), or interaction and mediation research on language. These approaches postulate a more interleaved relationship between cognition and language, action and knowledge and, more generally, revisit the porosity between subject and object. The musicology proposed by Bernard Vecchione is a territory fundamentally crossed by cooperative modes of action and reflection: between the sciences themselves, but also between scientists and artists. Interdisciplinarity is understood in a new manner: not only as a game between disciplines, but also as a game between practices, know-how, and knowledge.

virtuelles, en projet, en progrès, en procès,...). Cette définition va dans le sens même de l'histoire de la discipline et se trouve tout à fait conforme, sinon aux acceptions plus classiques du terme, du moins à la nature de l'objet sur lequel la musicologie s'interroge : la réalité de la musique dans les civilisations, sa nature, sa fonction »

¹⁴ This term was also used in 1927 by Boris de Schloezer in *his Introduction à Jean-Sébastien Bach. Essai d'esthétique musicale* (1947), reissue presented and established by Pierre-Henry Frangne, Rennes, Presses Universitaires de Rennes, 2009. The term “réalité musicale” (musical reality) conceived by Bernard Vecchione, however, is based on works of Pierre Francastel imported to the field of music. La *réalité figurative* thus surpasses Schloezer's objectivism.

¹⁵ Original text: « *Comme objet de la musicologie, la réalité musicale est à considérer comme une réalité complexe d'ordre anthropologique, faite d'œuvres et d'activités, toutes marquées historiquement mais aussi socialement, culturellement, psychologiquement et ce non seulement au sein des civilisations où les activités musicales s'instituent et se développent, mais relativement aussi aux groupes sociaux, et aux individus qui jouent ou ont joué au sein de ces groupes un rôle déterminant dans l'instauration de cette réalité : production, interprétation (actualisations, pérennisations...), appréhension... »*

2.3 Towards an Epistemology of Practices (in Arts)

In an article published in the proceedings of an international seminar held at IRCAM in 1983, entitled « *Quoi, quand, comment la recherche musicale* » [13], the musicologist Célestin Deliège tried to identify the similarities between musical research and scientific research, although he recognized their profound differences:

“In scientific research, if intuition can create a new theory, it is put to the test by ‘...a long series of deductive operations which fortify the axiomatic bases and create the conditions for possible extension’. The process of artistic research, on the other hand, is invoked by a capacity for invention. In our society, the artist is, - or at least endeavors to be - an innovator, or else his action is secondary. His intuition, like that of the scientific researcher, leads him to inductive inferences, but they lead not to a theory but to a new practice.”¹⁶ [13, p. 38-39]

...he was already trying to bring them closer together:

“The scientist, at best, sees his research as an aesthetic experience; his discoveries bring him a pleasure of a comparable nature; He perceives in the course of his activity a quality which tends towards completion. On the other hand, the artist aims like the scientist to constantly overcome what he has achieved, to encounter the new, the unprecedented, the unheard.”¹⁷ [13, p. 38]

Deliège will nevertheless retain in both processes the experience of the same temporality due to the autonomy of the experimental phase: “the time of the quasi-autonomous experiment, postulating a long-term discovery, most often indeterminate”¹⁸ [13, p. 37]. Scientists and artists will have to negotiate with their own experience with tools and technologies of which they cannot foresee the outcome. It is to this rapprochement that also responds Bernard Vecchione's musicological conception. The field of research of the musicologist presents two different aspects:

- **Works of Arts:** The works as fictional and critical regimes of the world which do not merely illustrate, but which interpret it, that say it, denounce it and experience it sensibly, as can be seen, for instance, in the work of the HeHe

¹⁶ Original text: « *Si l'intuition peut créer une théorie nouvelle, celle-ci est mise à l'épreuve par « (...) une longue suite d'opérations déductives qui en fortifient les bases axiomatiques et créent les conditions d'extension possible », à l'inverse, le processus de la recherche artistique est mis « en jeu par une capacité d'invention. L'artiste, dans notre société est, tout au moins, doit être un novateur, sans quoi son action est secondaire. Son intuition, comme celle du chercheur scientifique l'amène à des inférences inductives mais, en périodes normales, celles-ci débouchent, non sur une théorie, mais sur une pratique nouvelle. »*

¹⁷ Original text: « *Le scientifique, dans le meilleur des cas, vit sa recherche comme une expérience esthétique ; ses découvertes lui apportent un plaisir d'une nature comparable ; il perçoit dans le déroulement de son activité une qualité qui tend vers un achèvement. D'autre part, l'artiste vise comme le scientifique à dépasser constamment son acquis antérieur, à édifier l'inédit, l'inouï »*

¹⁸ Original text: « *le temps de l'expérience quasi autonome ne postulant la découverte qu'à échéance lointaine, le plus souvent indéterminée »*

collective, between sonic and visual arts. The installation / *Champs d'ozone* (2007) / (see Fig. 4) exploits air quality analysis data in Paris, provided in “near real time” by Airparif (Association for the monitoring of air quality in Ile-de-France), and transposes them into a sonic and visual space-time continuum. Air quality information is here freed from its usual cartographic representation; It is diffused through its constituent element: air. A simulated cloud, generated from digital data, is suspended on the city's horizon. The concentration of polluted air - nitrogen dioxide (NO₂), ozone (O₃), dust particles (PM₁₀) and sulfur dioxide (SO₂) - are thus made perceptible on the surface of the projection by colors ranging from bright red to celestial blue. The possible interpretations of the visual codes inherent to the cloud are at the discretion of the viewer.

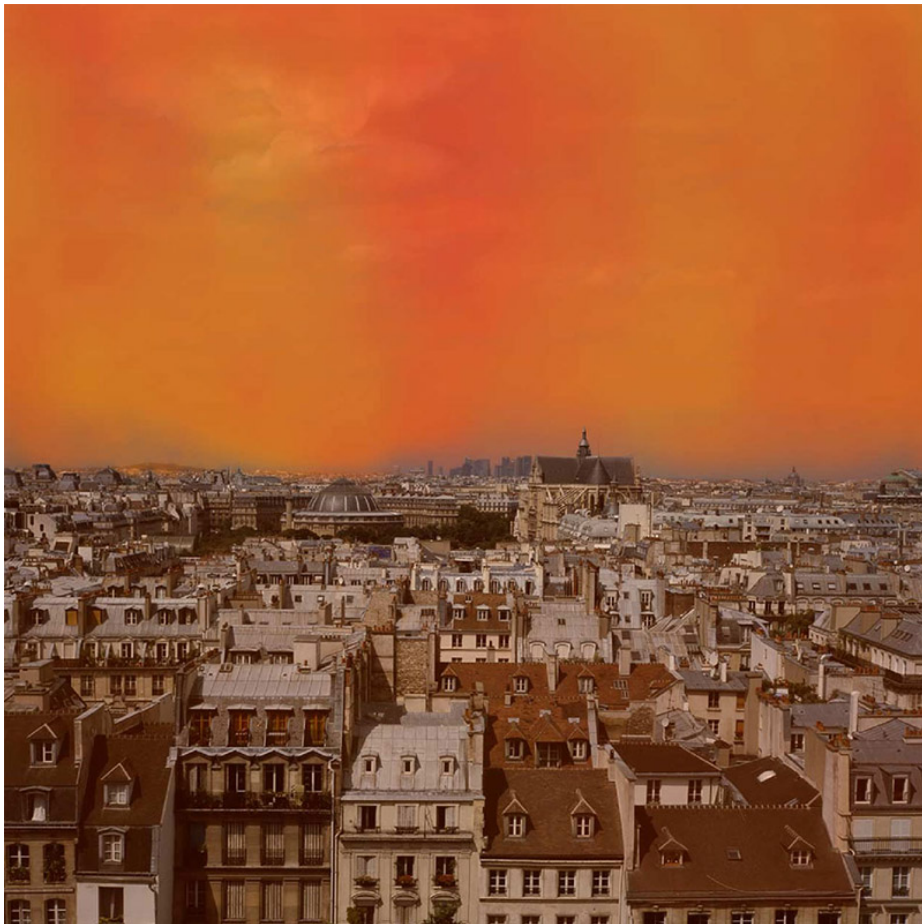


Fig. 4. *Champs d'ozone*¹⁹

¹⁹ <http://hehe.org.free.fr/hehe/champsdozone/>

Would a red cloud be more toxic than an orange cloud? Would level zero (i.e.: silence) indicate a total lack of pollution?²⁰

- **Musical Practices:** Musical practices (and not just “written texts”) become aware of the observer's point of view. Thus, research is always an encounter between different approaches (scientific and artistic), different sensibilities and insights on the world. This encounter involves researchers and artists in an equidistant sharing of their knowledge. As in quantum physics, where representation of space and time cannot be considered simultaneously, the asynchronous approach between different domains leads to a situation where not yet fully master the effects on the epistemology of the sciences and the arts.

This musicology can be qualified of “situated” and, as such, resembles in some ways the anthropological approach that has gradually become one of the strong models of the humanities since the beginning of the 21st century. The practical turn of the epistemology of sciences has become a paradigm henceforth unavoidable of our modern world [14][15], revealing a profound mutation of the sciences as proposed by the philosopher of sciences Michel Bitbol in his article “About the blind spot of science” [16]. For Michel Bitbol, if science aims for objectiveness, there is a distinction between “**utopian objectivity**” and “**topological objectivity**” that allows us to accept two complementary but also opposing aims of science.

- “**Utopian objectivity**” aims for the elaboration of general laws, explaining reality from a distant point of view, neutralizing individual consciousness, and without taking into account the instruments (tools and methods) used in the experience.
- “**Topological objectivity**” accepts, on the other hand, the limited (not to say reductive) scope of the knowledge which it is capable of transforming or producing. These limitations are mainly related to the situation of the knowledgeable individual (his tools, methods, theoretical and epistemological presuppositions...). Topological objectivity should be understood as in a permanent relationship with the world as it is lived and shared. It thus offers a special formulation of a reduced form of knowledge can be shared by “all knowing subjects, embodied and situated, and on which everyone can agree”²¹ [16, p. 15]. Indeed, for Michel Bitbol, the act of knowing would gain in abandoning the utopia of an objective and restricted science by accepting to be thought intersubjectively. Situated objectivity (topical) is generally regarded as weak in comparison with the utopian (i.e. aiming for universality) objectivity of

²⁰ <https://vimeo.com/1745381>. “The HeHe collective's works, which always place the viewer at the center of his preoccupations, pass through several fields of experimentation: questions related to perception or chromatic games, to wider questions concerning social or ecological phenomena. But with a true sense of performance, and with humor, we will always be able to visualize some of our daily concerns (pollution, consumption ...) in which we are all involved.” Collective created in 1999 and composed of Helen Evans (born in 1972) and Heiko Hansen (born in 1970) who live and work in Paris.

²¹ Original text: « *tous les sujets connaisseurs, incarnés et situés, et sur laquelle chacun peut s'accorder* »

science as it has developed since the 18th century. “Thus, always with Michel Bitbol’s words, at the most accomplished endpoint of the objectification research, it has become clear that objectivity in the strong sense of complete detachment from the action to know, in the strong sense of complete indifference to instruments, methods, and situation of the knowing subject, is proving to in principle impossible”²² [16, p. 14]. Indeed, topical objectivity is based on two prerequisites: that of the integration of the blind point (the researcher cannot observe everything, and what he sees is determined by his situation, his point of view - epistemological, theoretical and methodological - and the acceptance of its finitude.

In that context, the researcher recognizes and assumes his situation or even his subjectivity as well as his limits. As Hilary Putnam, a philosopher of science and professor at Harvard University writes:

“What we call “truth” depends both on what exists (the way things happen) and on the participation of the thinker (the mind). There is a human input, a conceptual input, in what we call truth. Scientific theories are not simply dictated by facts.”²³ [1, p. 14]

3 One Interscientific Musicological Context: the Deaf Musical Experience

To illustrate our proposal and to concretize the prospect of an interscientific vision of a musical context, we would like to expand our thinking with a specific musicological situation which seems to echo the words of Bernard Vecchione and Michel Bitbol, by proposing at the same time a fundamentally transdisciplinary research posture and a decompartmentalization of the musicological knowledge: the Deaf musical experience [17].

Initially a priori paradoxical, the musical experience of the Deaf allows nevertheless to beyond ordinaries considerations of music and to envisage it in its deep complexity with a careful and specialized analysis.

Thus, this situation requests a systematic musicology, by making music the real context of the scientific observation. Beyond the historical and cultural standards which characterize it currently, music become in itself the main source of study, the

²² Original text: « Ainsi, à l’extrémité la plus accomplie de la recherche d’objectivation, on s’est aperçu que l’objectivité au sens fort de détachement complet vis-à-vis de l’acte de connaître, au sens fort d’indifférence complète aux instruments, aux méthodes, et à la situation du sujet connaissant, s’avère principiellement impossible »

²³ Original text: « Ce que nous appelons « la vérité » dépend à la fois de ce qui existe (la manière dont les choses se passent) et de la participation du penseur (l’esprit). Il y a un apport humain, un apport conceptuel, dans ce que nous appelons « la vérité ». Les théories scientifiques ne nous sont pas simplement dictées par les faits »

true object of its own study. Because deafnesses suppose other relations to music and other musical practices, to consider the Deaf musical experience disrupts the common sense, accepted notions and even more, the conventional musicological reasonings. Beyond any paradox, the Deaf make music and only their experience can explain that. And maybe more...

Because, like Charles Gaucher has written:

“Strange and attractive, the deaf difference speaks the language of the radical otherness, that which monopolizes, but for minor details, what must be thought by contemporary social sciences”²⁴[18, p. 356]

3.1 “Being Deaf” and “Deafnesses”: Anthropological Context

To develop a musicological study of the Deaf musical experience, it is necessary, in the first instance, to take interest in deafness which determine a particular anthropological context. Because fundamentally, deafness induces and involves in itself a singular experience. Experience of the otherness, experience of the difference, experience of the abnormality, as many life situation features which seems to pose itself as an uncommon space, little known and reduced to the first representation that one usually associates with it: the “handicap”.

Deafness is a “handicap”, since the individual is carrying a substantial deterioration of his auditive functions. But beyond the handicap, which assesses experienced situations relative to the share of alteration they imply and not to their share of “otherness”, beyond the impairment can we see deafness as a significant anthropological context, and a singular cultural affiliation.

The Deaf constitute a community in its own rights, integrated into the ordinary world, community which carries its identity, its values, history and culture. This dimension of the deafness is the one we are interested in; and more particularly the situation “of being Deaf”. “Being Deaf” is in a general consideration, a singular situation coming under particular physiological provisions that we could call “extraordinary”. “Extraordinary” because deafness conditions are detached from those whose the hearing is “ordinary”. “Extraordinary” because deafness conditions are detached from the “ordinary” ones of the hearing person. Here, we choose to speak of “ordinary” rather than “normality”, because the standard carries coherent values, only for the individual who agrees with it; and in the words of Claude Hamonet: “We are all normal, proceeding from the same humanity with functional characteristics, and thus

²⁴ Original text: « *Étrange et attractive, la différence sourde parle le langage de l'altérité radicale, celle qui monopolise, à peu de chose près, ce qui se doit d'être pensé par les sciences sociales contemporaines* »

performances, which are different”²⁵ [19, p. 375]. Thus, “being Deaf” implies a differential determination regarding the ordinary condition; the deficiency transforms the usual vision of realities and the world representations. In that sense, “being Deaf” means apprehending the world in a non-normalized way, beyond the ordained normality. For that, “being Deaf” means living in the world, in a particular place, inaccessible to those who do not share the requirement to seize the world following this point of view.

There is not just one deafness situation but a multitude of deafnesses, since “being Deaf” necessarily corresponds to the individual experience of a singular situation. This categorization of the deafness levels is not enough to demonstrate the diversity of situations. If it allows considering the situation from Hearing standards, it does consider the individual and social situations of the subject who carries the auditive deficiency. Deafness is above all a life situation, and if one considers it from the phenomenological point of view, the question of the standard seems to disappear. The experience of a Deaf person is fundamentally an experience of the world, of the same world shared by every individual. The world does not differ, it's apprehended in a singular way and appears to the individual according to what seems standard to him. In this, the deafness situation needs to be thought as an individual and cultural reality. Individual because the subject lives the reality; cultural since every individual carries its very own culture.

The Deaf people constitute a multitude of social categories, sharing certain conditions but being united in various ways to the hearing community. The importance of the deficiency will influence this reunion to the standard, as well as the efficacy of a possible technical treatment with an auditive aid. But what seems to determine the relationship with the ordinary community appears to be firstly the linguistic choice. The question of the language is in the center of the individual construction of the Deaf person. The communication is in essence the social vector and the possibility of using the vocal communication facilitates coming together with the ordinary community. However, the natural language of Deaf people, the Sign Language, is very often an obstacle to the union of the individual to the ordinary community. But the sign language represents the language of the Deaf community, and underlines at the same time the integration of the subject in a linguistic and cultural minority. This is precisely what we aim at studying and in particular the group of Deaf persons, with a capital D, which designates the persons who claim for an identity and a particular culture, the Deaf culture. In this situation, deafness is the place of affiliation and cohesion of an entirety of representations and singular creations, including music in various ways.

²⁵ Original text: « *Nous sommes tous normaux, procédant de la même humanité avec des caractéristiques fonctionnelles, et donc des performances, différentes* »

3.2 “Deaf Musical Receptions”: Physiological Context

What seems *a priori* paradoxical in the Deaf musical experience is the loss of hearing: “how the Deaf, who don’t hear, can make or listen music?”

To answer – quickly – this question, we rely on a sociological investigation [17][20] realized among the French-speaking Deaf persons, in order to determine the specifics which appear in the singular relation they have with music. This investigation allows us to contextualize the reality of this special connection to music, allowing us to exceed the initial paradox involved in the relation between music and deafness. This survey comprises all deafnesses in order to determine the possible differences of musical and sound apprehension depending on the various experienced situations.

Without detail here all the results, we can still specify that, in the two hundred responses obtained:

- 50% of respondents declare “*not hearing any sound with their ears*” and 55% declare “*not hearing music*”.

However, regarding the musical practice:

- 69,7% of respondents declare “*listening to music*”; 36,3% say they “*practice music*”, and 36,4% of the not-practitioners “*wishes to do it*”.

Moreover:

- 70,9% concede that “*music occupies a particular place in their everyday life*”.

However, the music reception does not lie on the usual elements being used to determine it:

- 82,3% confess “*not make a distinction between music notes*”; 51,2% do “*not differentiate rhythms*”; 65,6% do “*not recognize a musical style*”; and 77% do “*not differentiate musical instruments*”.

Thus, the musical experience seems to move from the ear to the body:

- 60,8% declare “*feeling corporeally the sounds*”, including 3% “*without any auditive perception*”. 66,4% “*perceive music in their bodies*”; and 59,3% say that “*the sight helps to perceive sounds*”.

Can one observe that music seizes the body, and that it touches a certain number of very specific zones. From obtained responses, we can propose a classification of the bodily perception which approximates the categorization of bodily types of sound perceptions elaborated by Maïté Le Moël [21]: 1) the “cutaneous perception”, on surface with in priority the hands, the arms and the face; 2) the bones, “in-depth perception”, which relates to the hands, the feet, the legs, or the cranium/skull; and 3) the “visceral perception”, which touches the belly, the heart, the lungs.

Thus, when we asked how the sound elements were perceived, the vibrating dimension of sounds is designated. The sound is mainly experienced via the vibrations which it produces, in the air, but also with the elements and the present objects (soil, walls, chair...). Vibrations are perceived by the body and are described like “*pressures which come from the outside*”, “*tickles*”, “*stirrings*” and “*buzzes*”, or “*discharges*”. One can thus point out that for the Deaf people, the body offers itself as the privileged space of the musical realization or according to one of the answers: “*the music expresses a certain harmony that all the body accepts and feeds from*”.

Therefore, as Pierre Schmitt wrote in his article “The music and the Deaf”:

“This relationship of deaf persons to the music recalls us that it is much more than one sensory experience, it is a social and cultural fact where the ear does not necessarily have a role to play. With regard to the direct music experience, since it is only vibrations, deafness, even profound, does not prohibit the sound contact but it shifts the privileged spot from the ear to the body.”²⁶ [22, p. 221]

3.3 “Deaf Music”: Musical Context

The music exists really within the Deaf community and has a particular role: at the same time meeting and cultural exchange spot with the hearing community, but also a space for the creation of a specific music, a denormalized music, carrying culturally singularities. Considered as a cultural space, music can be seen in the Deaf world like a place of esthetic creation detached from ordinary goals and impregnated of a strong cultural identity. But it is also a bridge between the Deaf and hearing cultures, in particular via the Sign Language.

From the point of view of a cultural and artistic opening, the hearing musical community is interested in the Deaf community and more particularly in its language, the Sign language. The gestural communication attracts and intrigues hearing persons, and a certain number of artists sought to integrate it into their musical productions. This musical incorporation of the Sign Language will have a significant evolution and will carry various values.

In a more thorough musical perspective, since few years Sign Language songs are being developed. The “sign-singing” (or “signsing”) aims at being a musical expression of one text, musical but not sounding, the body carrying the melody and rhythmic values specific to the song, with a “choreographed Sign language, abstract and poetic”²⁷ [22, p. 222]. Here we may observe the progress of a real Deaf musical

²⁶ Original text: « *Ce rapport des sourds à la musique nous rappelle qu'elle est bien plus qu'une expérience sensorielle, elle est un fait social et culturel où l'oreille n'a pas forcément de rôle à jouer. En ce qui concerne l'expérience directe de la musique, puisqu'elle est vibration, la surdit , y compris profonde, n'interdit pas le contact sonore mais elle en d place le lieu privil gi  de l'oreille au corps* »

²⁷ Original text: « *une langue des signes chor graphi e, abstraite et po tique* »

experience, where the melodicity seizes the body as the space of production of the musicality. The sign-singing belongs to Deaf world, but also acts like a bridge between the Deaf and hearing community. Various musical projects seek to intertwine vocal language and Sign Language, in particular in the hip-hop movements where the Deaf create their own musical style: the “Dip-hop” for “Deaf hip-hop”.

But the Deaf musical reality exceeds the simple collaboration between sign-singers and hearing artists, with the existence of a real Deaf musical scene. From an identity prospect, since the early years of 2000 a singular artistic and cultural scene exists, specific to the Deaf community, like Pierre Schmitt describes it, some “contemporary networks of young dynamic and mobile deaf persons, protagonists of a kind of *underground* deaf culture”²⁸ [22, p. 222]. We indeed witness musical activities but also visual events, organized by the Deaf themselves and bound to the Deaf. They are in particular the “Signs and Vibrations” evenings, “Laser Sign” or the “deafraves”. We can observe that the musical space for creation is here completely hogged by the Deaf and even diverted to become a specific cultural object. The image is integrated into the music so that Deaf persons speak then of “Vusic”, contraction of *Visual* and *music*. The “Vusic” describes what music reality is for a Deaf person: at the same time of the images and vibrations, two constitutive elements of a singular esthetic object. Thus, to consider the music of the Deaf is both to study the Deaf creative abilities and also the music itself, in its depth and in what constitutes it in itself. And as Pierre Schmitt writes:

“If the claiming of a particular musical experience [...] represents a contemporary expression of this shared culture resulting from deafness, it imposes at the same time the assessment of a plural deaf culture, where the limits between the deaf and hearing worlds are permeable. These worlds thus seem like categories to be deconstructed”²⁹ [22, p.232]

If music brings together the Deaf and hearing worlds, it seems that the Deaf musical experience can to expand the musical world and its common comprehension. Because the musical experience of Deaf reveals one part of the ordinary experience of music, the neglected part due to “ear’s domination”: the place of the body in the musical existence.

²⁸ Original text: « *des réseaux contemporains de jeunes sourds dynamiques et mobiles, protagonistes d'une sorte de culture sourde underground* »

²⁹ Original text: « *Si la revendication d'une expérience particulière de la musique [...] représente une expression contemporaine de cette culture partagée issue de la surdité, elle impose en même temps le constat d'une culture sourde plurielle, où les limites entre les mondes « sourd » et « entendant » sont perméables. Ces mondes apparaissent ainsi comme des catégories à déconstruire* »

3.4 “Musical Experience”: Phenomenological Context

Common sense approaches music as a *product* of listening, subsequently making the ear its crucial auxiliary for realization; the musical experience is very often thought to be the privileged field of the *audible*, where the sound matter organizes itself so that it be sieges, through the ear, the subject’s mind. However, the individual inscription as a *body* within the musical space implies a true physical investigation, essential feature of the musical experience. Although apparently secondary, this body experience of music seems fundamentally engraved in the heart of the *sensible* share of the sound world, featuring a unique representation of human existentiality, specific to each musical experience. Entirely projected in the heart of the latter, the body offers itself as the interface binding the man to music; at the root of its perception and mental outlook, it establishes a unique relationship with the sound world.

From a phenomenological point of view, the music arises as an event appearing in the world. As an object or phenomenon, the music proposes to an individual a specific spatio-temporal context which constitutes the world's musical appropriation. The music is thus primarily a context, which becomes an event when the individual takes part in its realization. Music's eventual dimension finds its place in the necessary inscription of the individual in the heart of the context given to be lived. Moreover, the concretization of the musical existence is carried out primarily in the instant of its realization, which is no other than that of the presentation to the individual. In this way, music is very often regarded as *the art of the present*, taking into account its ability to exist materially only in its time of presentation. The present offers itself as time of existence, that of the being-there, and necessarily implies a presentation to an individual in presence, who achieves it. However, the sound event being fundamentally temporal, the music imposes its materiality and its own temporality on the individual who lives it. From this point of view the music is transposed in *art for presences* [23]: individual presence and sound space's presence. The individual becomes the central point of the instantaneous musical achievement, his presence inducing the event's realization.

The encounter of the individual and the sound event is at the foundation of the musical experience. For the music to exist as an event and to match a reality, it is necessary that the individual experiences it, in being in the presence of the musical event's spatio-temporal context. However, the experientiality principle implies necessarily another principle, that of “incarnation”, since the individual is invested consciously and corporally in the experience. To live an experience is to penetrate the existence of something, and to be penetrated by this something. It is via my body, as it frames my existence and my inscription in the world that I understand this world and that I feel belonging to it.

Generally, musical situations have the individual falling in line with a material and temporal context, a singular context within which the body dispositions reveal two essential aspects: it places itself both as realization “medium” of the musical event,

but is also offered as the instantaneous “center” of the experiences. So, may we observe that the body firstly fashions the music, offering itself as the support of its existence and the pedestal of its achievement, and also that music has an essential impact on the body, commanding a specific time and space from which it cannot be separated. The musical event given to *be lived* is embodied in us within the time of the experience.

To approach as close as possible to the bodily dimension of music and finding the essence of the musical incarnation, deafness offers a very singular perspective. It allows to exceed the permanent presence of the ear and to focus only on the body experience. Thus, the Deaf musical experience contributes to develop the musicological research by giving it new orientations and at the same time offering it an opening to itself.

*

To summarize the interscientific nature inherent in our musicological consideration of the Deaf musical experience, we can propose the schematic representation below which incorporates and expands – in the view of Bernard Vecchione – the fundamental domains of our analytic enterprise.

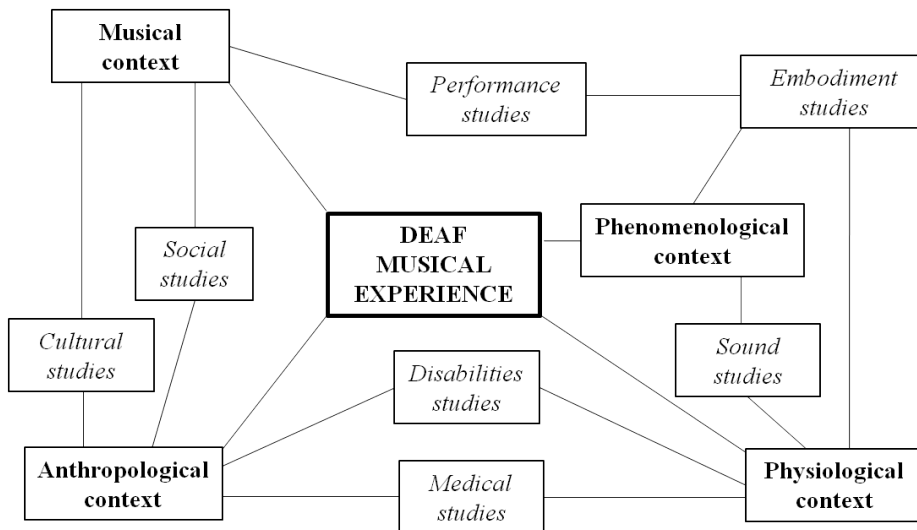


Fig. 5. Deaf musical experience – intersciences network

To Conclude...

The current musicology looks up its objects in all contemporary realities – historical, cultural, social... - and music appears today more than ever at the basis of a profound study of what it is in its most various forms. Thinking the interscientific aspects of the musicological project, it is to aim for the scientific nature of our discipline, considering the true subject of all its study objects, music, on the basis of what it produces as practices, contexts or realities – starting from social, historical, analytic or praxeologic orientations. Not music like a product of all these domains, but like the only one domain. The intersciences project, if it finds a sense to the musicological enterprise, it is necessarily in this way: of the object-music to music as subject. Of the musicological science towards an interscientific musicology.

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