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Holistic Architecture for Music Education: A research design for carrying out empiric and interdisciplinary studies in didactics of music

Rolando Angel-Alvarado
Universidad Alberto Hurtado (Chile)
Universidad Pública de Navarra (Spain)
Miguel R. Wilhelmi
Universidad Pública de Navarra (Spain)
Olga Belletich
Universidad Pública de Navarra (Spain)

Abstract. Aesthetic issues of music are relevant in music education research, but other elements linked to social sciences also play a central role, such as relationships among classmates, dyadic interactions between students and teachers, impact of cultural capital in classroom situations, and so on. In this regard, research design for music education should propose an iterative interaction between theoretical foundations and complex real-world situations in order to educators and researchers may be able to undertake educational activities that are grounded theoretically, contrasted empirically as well as they are reproducible. In this study, we will construct an interdisciplinary and holistic research design for music education. The constant comparative method, which is linked to grounded theory, is applied in order to construct a structural design. Results have defined an interdisciplinary and holistic research design because mixed research methods are used for analysing music education phenomena from complex thinking, valuing the relevance of sociocultural milieu. In conclusion, the proposed structural design is appropriate for music education because, in theoretical terms, it involves a hermeneutic circle between epistemological bases and broad-based, complex and critical real-world situations in the field of music education.

Keywords: Interdisciplinary approach, system design, design-based research, musical Bildung, music education.

Resumen. Los temas estéticos de la música son relevantes en la investigación de la educación musical, pero otros elementos vinculados a las ciencias sociales también desempeñan un papel central, como las relaciones entre compañeros de clase, las interacciones diádicas entre estudiantes y profesores, el impacto del capital cultural en situaciones de clase, etc. En este sentido, el diseño de una investigación para la educación musical debe proponer una interacción iterativa entre los fundamentos teóricos y las situaciones complejas del mundo real, para que los educadores e investigadores puedan emprender actividades educativas fundamentadas teóricamente, contrastadas empíricamente y reproducibles. En este estudio, construiremos un diseño de investigación interdisciplinar e integral para la educación musical. El método comparativo constante, que está

vinculado a la teoría fundamentada, se aplica para construir un diseño estructural. Los resultados han definido un diseño de investigación holística e interdisciplinar, porque se utilizan métodos de investigación mixtos para analizar los fenómenos de la educación musical desde el pensamiento complejo, valorando la relevancia del medio sociocultural. En conclusión, el diseño estructural propuesto es apropiado para la educación musical porque, en términos teóricos, implica un círculo hermenéutico entre las bases epistemológicas y relevantes, situaciones del mundo real complejas y críticas en el campo de la educación musical.

Palabras clave. Enfoque interdisciplinario, diseño de sistemas, investigación basada en diseño, música musical, educación musical.

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1. Introduction

According to Mayday Group, "the research and theoretical bases for music education must simultaneously be refined and radically broadened both in terms of their theoretical interest and practical relevance"[839]. Therefore, a research design linked to pragmatism should be constructed for music education as it is focused on real-world situations from an interdisciplinary standpoint[840], considering both theoretical and practical knowledge within teaching and learning. This pragmatic research design would be useful both researchers and educators due to it allows proposing educational activities that are grounded theoretically, contrasted empirically as well as they are reproducible.

Arts-Based Research (ABR) does not meet the criteria required by a pragmatic research design due to it is focused on "the utilisation of aesthetic judgement and the application of aesthetic criteria in making judgements about what the character of the intended outcome is to be"[841]. Aesthetic issues of music are relevant in music education research, but other elements linked to social sciences also play a central role from a Bourdieuian perspective[842], such as relationships among classmates, dyadic interactions between students and teachers, impact of cultural capital in classroom situations, and so on. Unlike ABR, Design-Based Research (DBR) is an interdisciplinary and holistic research approach[843] that serves both for theoretical construction and practical

[839] MAYDAY GROUP: "Action for change in music education", in REGELSKI, A. & GATES, T. (Eds.): *Music education for changing times: Guiding visions for practice*, Springer, Dordrecht, 2009, pp. xxxi-xxxvii, p.xxxv.
[840] *Cf.* CRESWELL, J. W.: *Research design: Qualitative, quantitative and mixed methods approaches*, CA: SAGE, Los Ángeles, 2014.
[841] BARONE, T., & EISNER, E. W.: *Arts based research*, SAGE, Thousand Oaks, 2012, p. 8.
[842] *Cf.* VIST, Torill: "Arts-based research in music education – general concepts and potential cases", in *Nordic Research in Music Education* (16), 2015, pp. 259–292.
[843] *Cf.* BROWN, A. L.: "Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings", in *The Journal of the Learning Sciences,*

application, involving iterative relationships among theoretical bases and complex real-world situations[844]. In this regard, pragmatic philosophy plays a determinant role[845] because it provides a coherent epistemological system between the theoretical framework and empiric activity[846].

In this study, we will construct an interdisciplinary and holistic research design for music education. In order to reach this aim, three basic components – philosophical worldview, structural design, and methods- applied in all research designs are considered[847], taking into account DBR's foundations as well as theoretical and practical knowledge linked to music education. Therefore, grounded theory is focused on the constant comparative method because it allows qualitatively analysing the three basic components, understanding them as criteria. Regarding indicators, the philosophical worldview is oriented toward pragmatism, structural design is coherent with DBR, and finally, methods and procedures must be consistent with theoretical foundations of music education.

2. Method

Grounded theory is focused on the Constant Comparative Method (CCM) as data collection and data analysis are involved in a spiral process, establishing as an endpoint a theoretical saturation of conceptual categories[848]. In this way, data are collected from scientific literature in order to be compared and integrated among them through open coding. These procedures allow establishing a theoretical delimitation, which makes it feasible the writing of a theory[849].

In this study, CCM is posed from a deductive process because the construction of a research design implies widening conceptual categories, without the need to

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2(2), 1992, pp. 141-178; THE DESIGN-BASED RESEARCH COLLECTIVE (2003): "Design-Based Research: An emerging paradigm for educational inquiry", in *Educational Researcher*, 32(1), 2008, pp. 5-8.

844 *Cf.* ANDERSON, T. & SHATTUCK, J.: "Design-Based Research: A Decade of Progress in Education Research?", in *Educational Researcher,* 41(1), 2012, pp. 16–25; McKENNEY, S., & REEVES, T. C.: *Conducting Educational Design Research*, NY: Routledge, New York, 2012 and ZHENG, L.: "A systematic literature review of design-based research from 2004 to 2013", in *Journal of Computers in Education, 2*(4), 2015, pp. 399-420.

845 *Cf.* ANDERSON, T. & SHATTUCK, J.: "Design-Based Research: *Op. Cit.*

846 *Cf.* GOFF, W. M., & GETENET, S.: "Design-Based Research in doctoral studies: Adding a new dimension to doctoral research", in *International Journal of Doctoral Studies, 12,* 2017, pp. 107-121.

847 *Cf.* CRESWELL, J. W.: *Research design:, Op. Cit.*

848 *Cf.* SALDAÑA, Johnny: *The coding manual for qualitative researchers*. SAGE, London, 2013; WILKINSON, A.: *The creator's code: The six essential skills of extraordinary entrepreneurs*. NY: Simon & Schuster Paperbacks, New York, 2015.

849 *Cf.* SAN MARTÍN, D.: "Teoría fundamentada y Atlas.ti: Recursos metodológicos para la investigación educativa", in *Revista Electrónica de Investigación Educativa*, 16(1), 2014, pp. 104-122.

verify theoretical universality or implications of other factors[850]. Thus, the following conceptual categories are pre-established:

- A hermeneutic circle between theoretical foundations and empiric activities in didactics of music.

- A structural design focused on the theoretical understanding of music education as of the hermeneutic circle that considers the importance of sociocultural milieu.

- Mixed research methods in consistency with theoretical foundations of music education.

2.1. Conceptual sampling

International scientific literature oriented toward music education and research methodology is applied herein. Firstly, the hermeneutic circle is observed from reported cases where curriculum theory and educational practice are confronted iteratively with the intention of establishing a philosophical worldview linked to pragmatism in studies concerned to music education. Secondly, the structural design is constructed in a general way, taking DBR as a structural model because it allows including the hermeneutic circle in the approach. Finally, theoretical foundations of music education provide construct's validity in each phase of the proposed research design, emphasising the need to apply mixed research methods with the intention of establishing a holistic research design, which should also possess an interdisciplinary standpoint.

2.2. Context

In the field of music education, DBR has been considered as an ideal research approach as it facilitates analysis of own educational practices and those of other people, promoting the use of technology, creativity and engagement for attempting to incorporate new educational practices[851]. That said, DBR could be considered a relevant research approach for music education. However, some studies have provided evidence of the approach's technical weakness[852] as reports in question obtained their results through qualitative techniques alone, thus failing to satisfy the mixed research methods that distinguish DBR from other research designs. It is a fact that qualitative techniques have more

[850] *Cf.* OSSES, S., SÁNCHEZ, S. e IBÁÑEZ, F.: "Investigación cualitativa en educación: Hacia la generación de teoría a través del proceso analítico", in *Estudios pedagógicos,* 32(1), 2006, pp. 119-133.
[851] *Cf.* COOPER, N.: "Design-based research as an informal learning model for choral conductors", in *London Review of Education, 15*(3), 2017, pp. 358-371; OJALA, A.: "Developing learning through producing: Secondary school students' experiences of a technologically aided pedagogical intervention", in SMITH, G.D.; MOIR, Z; M. Brennan, RAMBARRAN, S. & KIRKMAN, P. (Eds.): *The Routledge research companion to popular music education*, NY: Routledge, New York, 2017, pp. 60-74.
[852] *Cf. Ibid.*

relevance into the structural design[853], but such a statement does not imply that quantitative data should be ignored by researchers. In fact, DBR is posed as a holistic research approach since the beginning due to Brown postulated "I mix and match qualitative and quantitative methodologies in order to describe the phenomena"[854]. Therefore, it is imperative to establish a structural design coherent with DBR.

2.3. Procedures

The construction of the research design is carried out by using the open coding procedure, that is, relevant information is directly collected from the scientific literature. That information allows identifying trends, patterns and relationships between the conceptual categories, making it feasible to carry out an axial coding[855], which is represented through an interaction between DBR and theoretical foundations of music education. Given these procedures, selective coding allows obtaining a core category[856], which expresses an interdisciplinary and holistic research design for music education.

3. Results and Discussion

"In music education, we must also consider curriculum making in relation to our beliefs about the nature and value of music making, listening, musical experience, creativity, and a long list of related artistic issues"[857].

Student's musical understanding is dependent upon the implementation of tailored didactics to the learner's sociocultural context[858], accepting "that recent Anglo-American usage of 'pedagogy' mirrors the mainland European use of 'didactic'"[859]. Therefore, music education requires that often teachers and instructors constructively reflect upon their pedagogical work. Nevertheless, music education is increasingly being subjected to scrutiny because the

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[853] *Cf.* BARAB, S.: "Design-based research: A methodological toolkit for engineering", in SAWYER, K.R. (Ed.): *The Cambridge handbook of the learning sciences,* NY: Cambridge University Press, New York, 2014, pp. 270–302.

[854] BROWN, A. L.: "Design experiments: *Op. Cit.,* p. 156.

[855] *Cf.* SALDAÑA, Johnny: *The coding manual for qualitative researchers*, *Op. Cit.*

[856] *Cf.* UGBOR, U. N.: *Becoming knowledge focused: A practical approach to managing knowledge in international organizations*, Center for International Knowledge Management, Vienna, 2008.

[857] ELLIOTT, D. J. : "Curriculum as professional action", in REGELSKI, A. & GATES, T. (Eds.): *Music education for changing times: Guiding visions for practice*, Springer, Dordrecht, 2009, pp. 163-174, p. 163.

[858] *Cf.* CORRIGALL, K., & SCHELLENBERG, E.: "Predicting who takes music lesson: parent and child characteristics", in *Frointiers in psychology, 6*(282), 2015, pp. 1-8; LÓPEZ-ÍÑIGUEZ, G., & POZO, J. I.: "The influence of teachers' conceptions on their students' learning: Children's understanding of sheet music", in *British Journal of Educational Psychology,* 84(2), 2014b, pp. 311-328; MORGAN, J., MAcDONALD, R., & PITTS, S.: ""Caught between a scream and a hug": Women's perspectives on music listening and interaction with teenagers in the family unit", in *Psychology of music,* 43(5), 2015, pp. 611-626.

[859] HAMILTON, D.: "The pedagogic paradox (or why no didactics in England?)", in *Pedagogy, Culture and Society, 7* (1), 1999, pp. 135-152, p. 148.

instruction has been mainly focused on technical performance[860], rather than ethical, aesthetic and social experiences[861]. In response to this scrutiny, proposals are being made for the didactics focus to be shifted to the social constructivist approach, which would strengthen the collaborative relationship between teacher, student and learning community, and eventually bring about the more robust interaction between the curriculum and didactics[862].

On the one hand, curriculum theory concerns with the way in which knowledge is selected and organised for learning according to historical, cultural and social criteria, with the aim of legitimising educational knowledge by means of its distribution and regulation according to conscience, power and social identity[863]. Thus, educational knowledge comprises symbols which possess meaning, while the curriculum forms the medium through which the meaning, organisation, reproduction, inclusion and exclusion of this knowledge – otherwise known as learning content – is expressed[864]. On the other hand, didactics is understood as the professional theoretical and practical knowledge required for teaching and learning[865], so it includes analysis of pedagogical work in matters of planning, instruction and assessment of learning.

In view of this, the learning content forms the central element connecting curriculum and didactics. Thus, on the one hand, learning content that is concerning curriculum theory is oriented toward the community through educational policy as well as the syllabus and, on the other hand, learning

[860] *Cf.* CAREY, G., HARRISON, S., & DWYER, R.: "Encouraging reflective practice in conservatoire students: A pathway to autonomous learning?", in *Music Education Research, 19*(1), 2017, pp. 99-110; DYNDAHL, P. KARLSEN, S., NIELSEN, S. G., & SKÅRBERG, O.: "The academisation of popular music in higher music education: the case of Norway", in *Music Education Research, 19*(4), 2017, pp. 438-454; SÖDERMAN, J. & SERNHEDE, O.: "Hip-hop – what's in it for the academy? Self-understanding, pedagogy and aesthetical learning processes in everyday cultural Praxis", in *Music Education Research*, 18(2), 2016, pp. 142-155.

[861] *Cf.* CASAS-MAS, A., POZO, J. I., & MONTERO, I.: "The influence of music learning cultures on the construction of teaching-learning conceptions", in *British Journal of Music Education, 31*(3), 2014, pp. 319-342; LÓPEZ-ÍÑIGUEZ, G., & POZO, J. I.: "Like teacher, like student? Conceptions of children from traditional and constructive teachers regarding the teaching and learning of string instruments", *Cognition and Instruction,* 32(3), 2014a, pp. 219-252.

[862] *Cf.* SHIVELY, J.: "Constructivism in Music Education", in *Arts Education Policy Review*, 116(3), 2015, pp. 128-136.

[863] *Cf.* LILLIEDAHL, J.: "The recontextualisation of knowledge: towards a social realist approach to curriculum and didactics", in *Nordic Journal of Studies in Educational Policy,* 1(1), 2015, pp. 40-47.
LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE: *The impact of three London conservatoires on the UK and London economies*, LSE, London, 2012.

[864] *Cf.* FORSBERG, E.: "Curriculum theory revisited – introduction", in FORSBERG, E. (Ed.): *Curriculum theory revisited: Studies in educational policy and educational philosophy*, STEP Report No. 10, Uppsala University, Upsala, 2007, pp. pp. 5-17.

[865] *Cf.* MATON, K.: *Knowledge and Knowers: Toward a realist sociology of education*, Routledge, London, 2014; WESTBURY, I.: "Teaching as a reflective practice: What migh Didaktik teach Curriculum?", in WESTBURY, I. HOPMANN, S. & RIQUARTS, K. (Eds.): *Teaching as a reflective practice: The German Didaktik tradition*, NJ: Routledge, Mahwah, 2010, pp. 15-40.

content that is pertaining to didactics tends toward an individual perspective[866]. Therefore, teachers should consider the learning content as a process and a product simultaneously, as it is linked to systematic individual growth and the achievement of concrete goals within a time frame[867].

3.1. Hermeneutic circle

The German concept of *Bildung* is highly complex, but in general terms, it is understood from two perspectives simultaneously[868]: as *process* that is focused on personal development aspirations and as *product* that comprises the desirable characteristics of a citizen.

Because of specific didactics are centred on knowledge construction and teaching of learning content, *Bildung* is posed at least through two main sources of self-definition: "scientific description and analysis as well as practical understanding and action"[869]. Particularly on music didactics, Nielsen[870] postulates that the main scientific source is defined by means of artistic, sound, stylistic, historical and cultural objects; whereas the main practical source entails the meaning attributed to said object by the student, so Nielsen's contribution is posed from an individualistic viewpoint. These two sources interact within a hermeneutic circle, where the object and subject meet for dealing with problems and phenomena. From a methodological perspective, a research hypothesis would be understood as a bridge between both main sources of self-definition due to it arises since the theoretical state of affairs and it is proven empirically.

From the Philosophical Music Didactics[871], the hermeneutic circle is defined as musical *Bildung*, establishing that the main scientific source is represented by Musicology, while Pedagogy depicts the main practical source. According to our standpoint, this approach poses a reductionism because both Musicology and Pedagogy can be analysed scientifically and practically.

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866 *Cf.* LILLIEDAHL, J.: "The recontextualisation of knowledge, *Op. Cit*.

867 *Cf.* CHEON, S. H., REEVE, J., LEE, Y., & LEE, J.: "Why autonomy-supportive interventions work: Explaining the professional development of teachers' motivating style", in *Teaching and Teacher Education, 69*, 2018, pp. 43-51.

868 *Cf.* WAGNER, P., STROHMEIER, D., & SCHOBER, B.: "Special Issue: Bildung-Psychology: Theory and practice of use inspired basic research", in *European Journal of Developmental Psychology*, 13(6), 2016, pp. 625-635.

869 SCHNEUWLY, B., & VOLLMER, H. J.: "Bildung and subject didactics exploring a classical concept for building new insights", in *European Education Research Journal,* (special), 2017, pp. 1-14, p. 4.

870 *Cf.* NIELSEN, F. V.: "Music (and Arts) Education from the point of view of didaktik and bildung", in BRESLER, L. (Eds.): *International handbook of research in arts education*, NY: Springer, New York, 2007, pp. 265-285.

871 *Cf.* ANGEL-ALVARADO, R., & ÁLAMOS, J. E.: "Musical conducting in the Guitárregas guitar ensemble: A leadership based on the self-determination of music teachers", in *Revista Internacional de Educación Musical*, 6(1), 2018, pp. 53-61; GEORGII-HEMMING, E., & LILLIEDAHL, J.: "Why "what" on the content dimensions of music didactics", in *Philosophy of Music Education Review*, 22(2), 2014, pp. 132-155.

More specifically, musical knowledge possesses cultural meaning within a given human group, which could be expressed through historical, aesthetic, analytical, territorial, biological, educational, idiosyncratic, decolonial, and so forth discourses[872]. That is, musical activity is analysed and explained through the act of complex thinking. According to Swanwick[873], musical knowledge only holds meaning for music and music education when it is intertwined to an actual composition, a listening or a performance. Therefore, musical *Bildung* possesses an interdisciplinary approach because it is configured by two scientific and practical main sources: Musicology and Educational Sciences. In this way, musical knowledge is understood in a theoretical and practical way (Figure 1), both as a process and product.

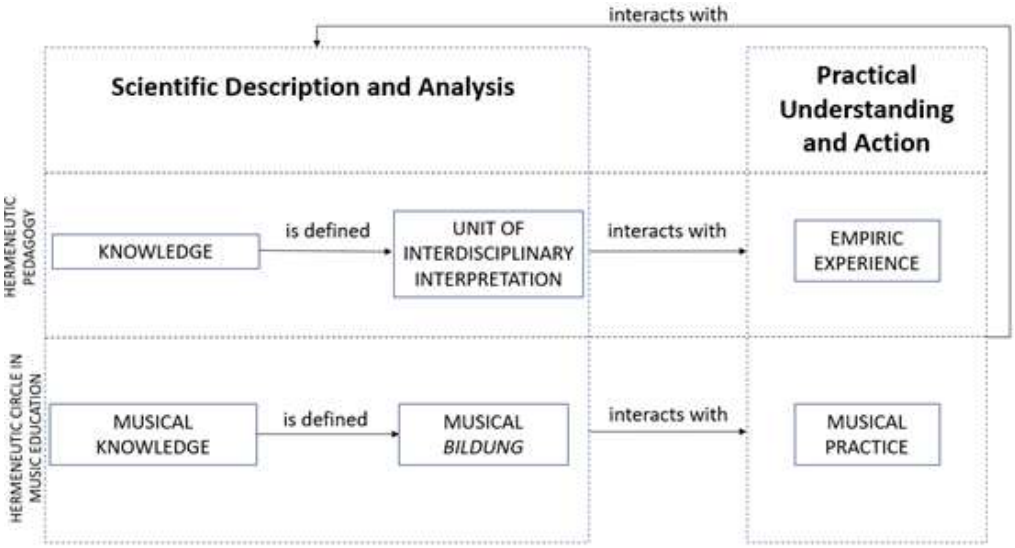

Figure 1. A hermeneutic circle between theoretical foundations and empiric activities in didactic of music (Own elaboration)

It is imperative to emphasise that *Bildung* and Learning are not synonymous, and in fact differ greatly[874]. In general terms, the definition of learning is limited to the "acquisition of knowledge or skills"[875] and, more importantly, learning is

[872] *Cf.* BEARD, D., & GLOAG, K.: *Musicology: The key concepts*. Routledge, Oxon, 2016; HOOPER, G.: *The discourse of musicology*. NY: Routledge, New York, 2016.
[873] *Cf.* SWANWICK, K.: *A developing discourse in Music Education: The selected works of Keith Swanwick,* Routledge, Oxon, 2016.
[874] *Cf.* SCHNEUWLY, B., & VOLLMER, H. J.: "Bildung and subject didactics exploring. *Op. Cit.*
[875] HUSSAIN, Akbar. (2014). *Experiments in psychology*. Delhi: PHI Learning Private Limited, p. 68.

understood as the result of planned teaching in musical situations[876]. By contrast, *Bildung* is linked to the process and product of construction of an individual as a person and citizen, and as a result involves more complex issues such as cognitive development, emotional stability, ethical maturity, and degree of self-determination, to give but a few examples.

However, *Bildung* can be defined through learning within a didactical situation by means of three levels[877]. The first level establishes a didactical *consensus* about standard results of learning within a specific content, such as interval recognition or *solfège*. The second level defines procedural or logical competences of a specific learning content which are useful in other contexts, such as the breathing techniques, psychomotor training, and so on. Finally, the third level identifies which learning cannot be guaranteed during didactical situation because it responds to anthropological and sociological dimensions that are closely linked to individual construction, for example, instrument care, respect for musical activity, and so on.

Particularly on Philosophical Music Didactics, musical *Bildung* is defined through learning by means of four basic didactic positions, which represent a second level within the hermeneutic circle. These basic didactic positions are[878]:

- Basic subject didactics comprises music education in its learning contents, principles and educational conceptualisations expressed through curriculum theory. In other words, it represents a normalised didactics *consensus*.

- Ethno-didactics implies daily musical experience and specific knowledge of a community, so it is broached from a micro-cultural perspective. Therefore, acquired competencies can be used in another social context.

- Challenge didactics poses learning contents in order to confront globalisation, so it has implicit moral and ethical baggage because it is oriented toward the strengthening of critical thinking, social cohesion and engagement with democracy. That is, it also promotes the acquisition of transversal competences, although it is mainly broached from a macro-cultural perspective.

- Philosophical anthropological didactics seeks to understand to human being from a holistic perspective of education, in order to construct an integral didactics which coherently articulates emotion and logic by means of diverse

[876] *Cf.* SMILDE, R.: *Musicians as lifelong learners: Discovery through biography*, Eburon Academic Publishers, Delft, 2009.
[877] *Cf.* SCHNEUWLY, B., & VOLLMER, H. J.: "Bildung and subject didactics exploring. *Op. Cit.*
[878] *Cf.* ANGEL-ALVARADO, R., & ÁLAMOS, J. E.: "Musical conducting in the Guitárregas guitar ensemble, *Op. Cit.*; GEORGII-HEMMING, E., & WESTVALL, M.: "Music education - a personal matter? Examining the current discourses of music education in Sweden", in *British journal of music education, 27*(1), 2010, pp. 21-33; NIELSEN, F. V.: "Music (and Arts) Education, *Op. Cit.*

> approaches to social sciences. Therefore, it identifies personal learning which cannot be guaranteed or widespread during a didactical situation.

The two-level structure postulated by Philosophical Music Didactics comprises music education research as an interdisciplinary hermeneutic circle linked to holistic approach, as research results are understood like photography of a specific moment within a continuum construction process[879]. That is, the research outcomes represent a here-and-now of the didactical situation[880]. Therefore, the context is valued in the musical *Bildung* because it is a "key component of the theory validation process empirical researchers undertake"[881]. The context is not a mere data container, but it is an integral component of the complex phenomenon in question. Given this theoretical framework, the interdisciplinary and holistic research design would be linked to socio-critical thinking.

Regarding the complexity of music education centred on *Bildung*, studies are not focused on subject-music dualism only, but they are also interested on dialectical relationship between (non-)musical person and society[882] because of *Bildung* would contribute to the international discussion about the sensibility, cultural diversity and education policy[883]. That said, musical *Bildung* enables to analyse the person, society, learning content and musical objects, so it is posed from social constructivism. Due to all of the above, it is imperative to construct a network of observable didactical interactions in order to identify participant agents in real-world didactical situations.

3.2. Structural design

In musical *Bildung*, the main sources of self-definition depict the *basis* for a structural design as they enable to contrast empiric findings with the theoretical state of music education. In this regard, the four basic didactic positions play an essential role as they allow to analyse the observed didactical situation from a variety of perspectives, making it feasible the contrast process of research hypotheses. That said, the pragmatic philosophical worldview, which entails a relationship between theoretical and practical knowledge, would be demonstrated theoretically through a four-phase structural design based on the evolution of a theory[884].

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[879] *Cf.* OFIR, Z., SCHWANDT, T., DUGGAN, C., & McLEAN, R.: *Research quality plus [RQ+]: A holistic approach to evaluating research*, IDRC/CRDI, Ottawa, 2016.
[880] *Cf.* WESTERLUND, H.: "Reconsidering aesthetic experience in praxial music education", in *Philosophy of Music Education Review*, 11(1), 2003, pp. 45-62.
[881] - BARAB, S.: "Design-based research, *Op. Cit.,* p. 153.
[882] *Cf.* JANK, W.: "Didaktik, bildung, content on the writings of Frede V. Nielsen", in *Philosophy of Music Education Review*, 22(2), 2014, pp. 113-131.
[883] *Cf.* KERTZ-WELZEL, A.: "Revisiting Bildung and its meaning for internacional music education policy", in SCHMIDT, P. & COLWELL, R. (Eds.): *Policy and the political life of music education*, NY: Oxford University Press, New York, 2018a, pp. 107-121.
[884] *Cf.* BENCOMO, D., GODINO, J. D., & WILHELMI, M. R.: "Elaboración de redes ontosemióticas de configuraciones didácticas con Atlas/ti", in *Concept maps: Theory,*

The first phase is called Preliminary Studies, which implies delving into epistemological, institutional, and didactical dimensions of phenomena. The second phase is named Prospective Analysis as it formulates research hypotheses that are based on preliminary studies. Both phases represent a theoretical state of music education in structural design, making it feasible to propose a research hypothesis that should be empirically proven in the last phase of the structural design. The hypothesis is based on primary elements of music didactics – such as teaching and learning activities, classroom management, motivation, cultural beliefs, repertoires, contextual factors, and so on-, serving as a bridge between the theoretical state of music education and new practical knowledge provided through the data analysis.

Regarding the third and fourth phases, they delve into real-world situations since complex thinking. Specifically, the third phase is called Fieldwork, which entails delimitation of the sample, data-collecting techniques, instruments, data collection procedures, ethics for research, and so on. The data collection should aim at the observation of different educational agents who participate in a specific education system, taking into account that the sociocultural milieu is a determinant component in musical *Bildung* and, therefore, the internal validity of the four-phase structural design. Finally, the fourth phase is named Retrospective Analysis as it involves the analysis of data collected during the fieldwork with the intention of constructing an objective portrait based on the four basic didactic positions, which allows contrasting empirical findings with research hypotheses (Figure 2). That is, the contrast process proves whether a research hypothesis is accepted or not. In this way, the research outcomes should provide new theoretical and practical knowledge.

methodology, technology proceedings of the first International Conference on Concept Mapping, 2, 2004, pp. 71-74.

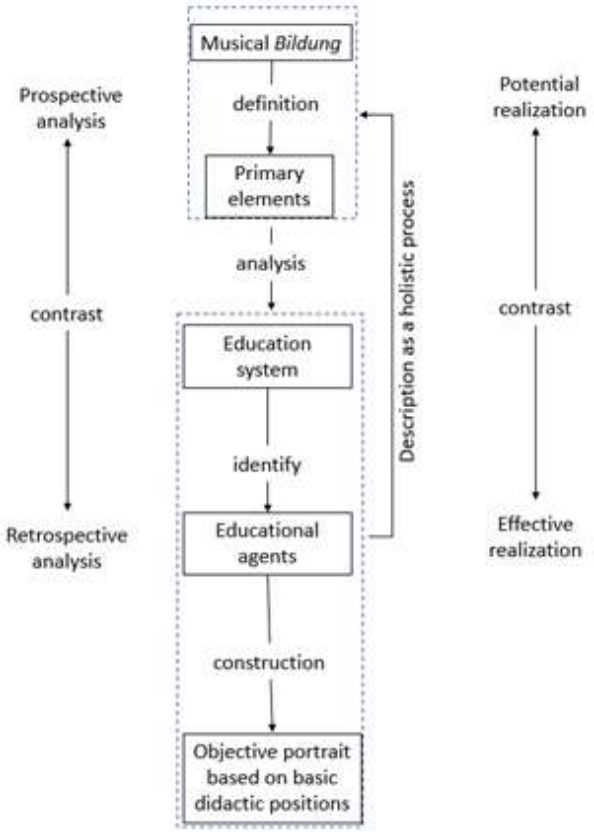

Figure 2. Contrast process between objetive portrait and rechearch hypothesis
(Own elaboration)

The four-phase structural design possesses an internal validity that is holistically described through the contrast process between retrospective analysis and the research hypothesis formulated on the prospective analysis. That is, the internal validity would be appraised by means of the consistency between the objective portrait and research hypothesis, rendering the question of sample size irrelevant[885]. The proposed structural design is considered as a holistic because, on the one hand, it applies mixed research methods[886], and on the other hand, it assumes findings as the picture of a specific moment within a didactic process that is systematic and permanent[887]. Therefore, the proposed

[885] *Cf.* ARTIGUE, M.: "Perspectives on Design Research: The case of Didactical Engineering", in BIKNER-AHSBAHS, A.; KNIPPING, C. & PRESMEG, N. (Eds.): *Approaches to qualitative research in mathematics education*, Springer, Dordrecht, 2015, pp. 467-496; POOL, J., & LAUBSCHER, D.: "Design-based research: is this a suitable methodology for short-term projects?", in *Educational Media International, 53*(1), 2016, pp. 42-52.
[886] *Cf.* LICHTMAN, M.: *Qualitative research in education: A user's guide*. CA: SAGE, Thousand Oaks, 2013.
[887] *Cf.* OFIR, Z., SCHWANDT, T., DUGGAN, C., & McLEAN, R.: *Research quality plus [RQ+], Op. Cit.*

structural design is posed as an interdisciplinary and holistic educational research approach due to both qualitative and quantitative data are intertwined for establishing a theory for teaching and learning of music.

3.3. Mixed research methods

Planning, instruction and assessment of learning are activities carried out by teachers[888]. In order to interpret student learning, Fautley[889] postulates three elements of understanding in music education, all of which come together to form an iterative process. The first element is Doing, which is related to conduct a musical activity either in music making, listening, creativity, and so forth. The second element is Learning, which involves to acquire or assimilate the musical activity conducted. Lastly, Understanding is the third element, which is the essence of teaching, as it is the culmination of the organisation of knowledge that grants the skills to overcome unforeseen problems or challenges, all this after to conceptualise and contextualise the perceived phenomenon during the aesthetic experience[890].

These three iteration elements must be observable throughout any didactical situation in order to lend authenticity to critical analysis. Thus, observation is conducted through three key assessment questions[891]. The first key question is Identify, which refers to the planning of didactics activity in order to assess the intended learning. The second key question is Quantify, which considers numerical and holistic assessments because the most important thing is to recognise and differentiate the quality of musical practice in a didactical situation. This key question enables applying mixed research methods during an observational activity in the third phase of the proposed structural design, which is called fieldwork. In any case, we suggest to replace the quantify concept by Assessment, which should be focused on holistic perspective, as it attributes more importance to the quality of the musical understanding than to its quantification. Lastly, Help is the third key question, which comprises immediate oral feedback given to a student by the teacher during an instructional situation, in order to improve the former's musical practice. From our standpoint, there are five types of help relationships, at least:

- Expert: Student becomes aware of her/his technical problems by means of teacher advice. For example posture, fingering, music theory, and so on.

- Inquiring: Student is invited by the teacher to discover new ways of musical representation in the social environment. For instance, soundscape, improvisation, listening to new repertoires, and so on.

888 *Cf.* NIELSEN, F. V.: "Music (and Arts) Education, *Op. Cit.*
889 *Cf.* FAUTLEY, M.: *Assessment in music education,* Oxford University Press, Oxford, 2010.
890 *Cf.* PATEL, A.: *Music, language, and the brain*. NY: Oxford University Press, New York, 2008.
891 *Cf.* FAUTLEY, M.: *Assessment in music education, Op. Cit.*

- Contextualised: Educator adapts musical content to the learner, both by reasons linked to technical difficulty and aesthetic experience. For example, music transposition, arrangement for replacing musical instruments, and so on.

- Agreement: *Consensus* between student and teacher in musical matters, such as expressivity, repertoires, compositional or creative frameworks, and so on.

- Petition: Teacher advises the student that daily musical practice is important for the acquisition and development of musical skills. For instance, the learner is preparing a recital or concert; the student does not comply with a task, the pupil is not looking after musical instruments, and so forth.

A didactic triangle is observed when a student iteratively interacts with the teacher and learning content within an actual didactical situation[892]. However, this didactic triangle is mainly oriented to the non-formal education system because a student is seen from an individualistic perspective. It is necessary, therefore, to consider also classmates in order to comprehend a didactical situation since social constructivism in the formal education system.

According to Westerlund[893], it is imperative to observe a student's musical practice from a learning community viewpoint. On the one hand, said community transmits emotional states that have an impact on student's learning and, on the other hand, learning community is modified by student's behaviour or attitude. In this way, the teacher educates a student through collective musical experiences[894], so a didactical situation is conducted within a collaborative learning community. Therefore, a holistic research approach should be considered for observing the learning community from a complex standpoint, as it takes into account emotional, aesthetic, bodily and so forth aspects[895].

In any case, social constructivism is not enough for understanding the complexity in didactical interactions, since it loses sight of external factors of the didactical situation. More specifically, the influence of society is not always observed at a glance as the cultural meaning attributed to knowledge by student,

[892] *Cf.* CAREY, G., HARRISON, S., & DWYER, R.: "Encouraging reflective practice in conservatoire students, *Op. Cit.*; TORRADO, J. A. & POZO, J. I.: "Metas y estrategias para una práctica constructiva en la enseñanza instrumental", in *Cultura y Educación*, 20(1), 2008, pp. 35-48.
[893] *Cf.* WESTERLUND, H.: "Reconsidering aesthetic experience in praxial music education", *Op. Cit.*
[894] *Cf.* WELCH, G. F.: "Ecological validity and impact: Key challenges for music education research", in REGELSKI, A. & GATES, T. (Eds.): *Music education for changing times: Guiding visions for practice* Springer, Dordrecht, 2009, pp. 149-159.
[895] *Cf.* BECK, C., & KOSNIK, C.: *Innovations in teacher education: A social constructivism approach*, NY: State University of New York Press, Albany, 2006.

teacher or learning community have an impact on the *Bildung*. In light of this, four anthropological elements inherent to music education should be presented because, from complex thinking, they represent sociocultural milieu of an observed education system. These elements are:

1. Facilities and resources: The existence of school infrastructure, materials and tools are required to conduct a music lesson, to the point that the lack of a music classroom, musical instruments or a sound system negatively affects the quality of music education[896].

2. Curriculum: It is implemented in an education system with the intention of organising, guiding and evaluating both teaching and learning processes[897]. Based on their personal experience, educators and instructors adopt a variety of teaching styles[898], which might generate controversies between curriculum theories, education policies, and educational practices[899].

3. Meta-economy: Musical experience is not considered to be a product, but rather an action that has a value in itself[900]. However, the global music market allows accessing to a broad playlist by means of payments, understanding music as a product and live events as a service. In this context, musicians have been forced to develop business strategies for promoting their products and services[901], which has an impact on music education as acquisition of self-management skills and copyright knowledge should be encouraged. In addition to this, the musical training of citizens represents both a public expense, although it also generates significant incomes[902].

- Globalisation culture: The rise of the global music market is destabilising music didactics to such a degree that educators begin to question their musical competences because they do not domain some music genres chosen

[896] *Cf.* DUARTE, J., JUAREGUIBERRY, F., & RACIMO, M.: *Suficiencia, equidad y efectividad de la infraestructura escolar en América Latina según el TERCE*. Oficina Regional de Educación para América Latina y el Caribe y Unesco, Santiago de Chile, 2017.
[897] *Cf.* REGELSKI, T. A. (2013). The Aristotelian bases of praxis for music and music education as praxis. In M. L. Mark (Ed.), *Music Education: Source readings from Ancient Greece to today*, NY: Routledge, New York, 2013, pp. 140-141.
[898] *Cf.* ARÓSTEGUI, J. L.: "Fundamentos del currículo para la educación musical", in J. L. ARÓSTEGUI, J.L. (Ed): *La música en Educación Primaria: Manual de formación del profesorado* Dairea, Madrid, 2014, pp. 19-42.
[899] *Cf.* ANGEL-ALVARADO, R.: "Controversies between curriculum theory and educational practice in music education", in *Revista Electrónica Complutense de Investigación en Educación Musical*, 15, 2018, pp. 83-95.
[900] *Cf.* VARKØY, O.: "The intrinsic value of musical experience. A rethinking: Why and how?", in PIO, F. & VARKØY, O. (Eds.): *Philosophy of music education challenged: Heideggerian inspirations*, Springer, London, 2015, pp. 45-60.
[901] *Cf.* KERTZ-WELZEL, A.: *Globalizing music education: A framework*, IN: Indiana University Press, Bloomington, 2018b.
[902] *Cf.* LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE: *The impact of three London conservatoires, Op. Cit.*

by learners[903]. Likewise, the globalisation aims to worldwide cultural homogenisation[904], making that music education focuses mainly on the training of musical consumers[905].

Anthropological elements inherent to music education enable analysing a didactical situation from a macro-social perspective. However, it is imperative to consider also a micro-social standpoint. In this regard, a network of educational interactions, where iteratively intertwine educational agents who integrated an education system, is configured. It is important to remain that learning content is considered as a bridge between the curriculum and didactics[906]. Therefore, it serves as a connecting link between all educational agents. As a result, the network of educational interactions implies the interconnection between the student, teacher, learning community and anthropological elements, finding themselves forced to interact with learning content (Figure 3). In general terms, said interactions could be understood in the following way:

- Learning content is the knowledge from society, which is represented by means of the syllabus, hidden curriculum, or popular belief even. Learning content must be carried out by teachers in order to promote student's construction as a person and citizen within the learning community.

- A teacher considers the learning content, anthropological elements and learning community for planning, instructing and assessing didactical situations proposed to a student.

- A learner dialogues with the teacher in order to explore the learning community and create an opinion about anthropological elements at school and sociocultural milieu. Moreover, the student also constructs new learning contents, which are shared with teachers and classmates.

- A learning community dialogues with the student and teacher in order to carry out didactical situations contextualised to its reality. In addition to this, the learning community creates an opinion about anthropological

[903] *Cf.* GEORGII-HEMMING, E., & WESTVALL, M.: "Music education - a personal matter? Examining the current discourses of music education in Sweden", in *British journal of music education, 27*(1), 2010, pp. 21-33; PARTII, H., & KARLSEN, S.: "Reconceptualising musical learning: New media, identity and community in music education", in *Music Education Research,* 12(4), 2010, pp. 369-382; SPRINGER, D. G.: "Teaching popular music: Investigating music educators' perceptions and preparation", in *International Journal of Music Education*, 34(4), 2015, pp. 403-415.
[904] *Cf.* KERTZ-WELZEL, A.: *Globalizing music education, Op. Cit.*
[905] *Cf.* HEIMONEN, M., & HEBERT, D.: "Nationalism and music education: A Finnish perspective", in HEBERT, D. y KERZT-WELZEL, A. (Eds.), *Patriotism and nationalism in music education*, NY: Routledge, New York, 2010, pp. 157-174.
[906] *Cf.* CHEON, S. H., REEVE, J., LEE, Y., & LEE, J.: "Why autonomy-supportive interventions work, *Op. Cit.*

elements at school and overall society, having an impact on the constructed opinion by each learner and teacher.

- Anthropological elements influence learning content by means of the facilities, educational resources, curriculum, meta-economy, and globalisation culture, holding an impact on the representation that student, learning community and teacher construct about the value of music education at school and society.

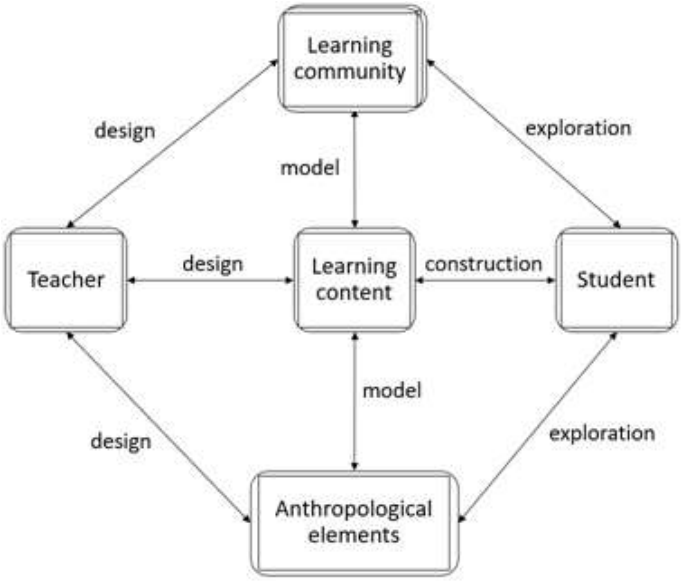

Figure 3. A network of educational interactions
(Own elaboration)

This network is useful for the third phase of the proposed structural design, the fieldwork, as educational interactions could be observed by teachers and researchers with the intention of constructing an objective portrait based on the four basic didactic positions during the retrospective analysis. The connection of educational interactions network based on Fautley's contribution with musical *Bildung* allows establishing a relationship between theoretical and practical knowledge from music education. In brief, since the research design is posed in an interdisciplinary perspective which involves the iterative application of theoretical bases and real-world situations, the description of structural design may be broached from mixed research methods, establishing a holistic research approach[907]. In this way, research results should be understood from complex thinking, considering both qualitative and quantitative data for assessing the

[907] *Cf.* LICHTMAN, M.: *Qualitative research in education, Op. Cit.*; OFIR, Z., SCHWANDT, T., DUGGAN, C., & McLEAN, R.: *Research quality plus [RQ+], Op. Cit.*

structural design consistency, as well as the complexity of didactical interactions network.

In an allusion to the interdisciplinary and holistic research approach, the proposed research design is called Holistic Architecture for Music Education (HAME) because the term of architecture is observed from a holistic viewpoint, which is related to arts, humanism, and social sciences[908]. The music's concept is understood as an "art, craftsmanship and everyday culture"[909], while musicology and ethnomusicology encompass both humanistic, scientific and artistic disciplines[910]. Finally, education's term is directly related to educational sciences.

4. Conclusions

HAME is incorporated to DBR's current as it is focused on the pragmatic analysis of didactical situations, having an internal validity as the consistency is appraised through the contrast process between the objective portrait and research hypothesis, rendering the question of sample size irrelevant. In light of this, the following four-phase structural design is considered:

I. Preliminary Studies: Analysis of previous studies from an epistemological, institutional and didactical perspective, considering a contextualisation of such literature. For instance, a revision of the national curriculum, its administrative application in education systems and, finally, its empirical incorporation according to school reports.

II. Prospective analysis: Definition of the research problem, sample, mixed research methods and hypothesis, which plays a central role in the structural design due to it enables valuing the holistic research approach. The research problems and hypotheses should be oriented to musical *Bildung* as they could inquire into the hermeneutic circle between scientific description and practical understanding. For instance, teacher/learner autonomy, educator/student sociocultural approach, the emotional environment in music lessons, and so forth.

III. Fieldwork: It comprises the observation and data collection in a real-world educational situation, considering qualitative and quantitative research methods based on the elements of understanding in music education and key assessment questions suggested by Fautley. The network of educational

[908] *Cf.* RABBAT, N.: "The boundaries of architectural education today", in SALAMA, A. M. A.; O'REILLY, W. & K. NOSCHIS (Eds.): *Architectural education today: Cross-cultural perspective*, Comportements, Lausanne, 2002, pp. 149-154.
[909] GEORGII-HEMMING, E., & LILLIEDAHL, J.: "Why "what" on the content dimensions of music didactics", *Op. Cit.*, p. 140.
[910] HOLFORD-STREVENS, L.: "Humanism and the language of music treatises", in *Journal of the Society for Renaissance Studies, 15*(4), 2001, pp. 415-449; AUBERT, L.: *The music of the other: New challenges for ethnomusicology in a global age*. Ashgate, Aldershot, 2007.

interactions is essential for observing all agents in the same environment. For example, learner autonomy is measured through psychological scales, and after which, the lesson is observed for obtaining evidence about student autonomy promoted by the teacher and learning community, based on the learning content established by the curriculum.

IV. Retrospective analysis: The objective portrait takes into consideration the four basic didactic positions proposed by Nielsen. That is, data collected during fieldwork are analysed from these four didactic positions. The objective portrait would explain phenomena, and it also replies to research questions. Therefore, it could show whether a hypothesis has been accepted or not during the holistic contrast process. For instance, the students feel their musical preferences are not considered by teacher nor school because both are focused on the technical performance of classical repertoire, despising emotional development of learners and local musical heritage. In that case, the objective portrait would establish that student autonomy is not promoted by the education system as the school's pedagogical project is mainly centred on teaching content and not in student learning.

In conclusion, HAME' structural design is appropriate for any kind of music education's context because, in theoretical terms, it involves a hermeneutic circle between epistemological bases and broad-based, complex and critical real-world situations in the field of music education. That is, HAME establishes an iterative relationship between curriculum and research papers with real-world didactical situations, taking into account either the network of educational interactions or didactic triangle. In light of this, HAME would provide theoretical and practical knowledge about musical *Bildung* within the teaching and learning situations, since educational activities would be grounded theoretically, contrasted empirically and they also could be reproducible. Therefore, HAME's contributions are linked to the theoretical and empirical scopes of music education knowledge because, beyond that present study represents only a HAME's theoretical framework, empirical applications carried out so far are showing its effectivity for inquiring into the musical *Bildung* of students and educators in different contexts. In any case, it is imperative to emphasise that HAME displays consistency with the traditional scientific method, so it should be understood as an overall research plan that is useful only for music education research.

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