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Practice as Research through Inquiry-Based Learning: A Pedagogical Intervention with Music Students in Higher Education

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Abstract: This paper presents the results of a Participatory Action Research, whose main objective was to validate a pedagogical intervention characterized by adopting an inquiry-based learning methodology (IBL), and the paradigm of Practice as Research focused on musical performativity. This intervention sought to foster autonomy, the relationship between theory and practice, and the development of critical reflexive skills in professional music students. The co-participants (12 students in the first cycle and 9 in the second) belonged to university training programs in vocal and instrumental interpretation, composition, and music pedagogy at different levels. In the intervention cycles, students were able to organize themselves collaboratively to achieve the learning objectives and research products designed in the intervention. During the process, they redefined research as a tool for professional development in their discipline. This empowered the participants, as they became aware that they themselves could build knowledge in their field. The intervention was validated, and the results highlight the potential of inquiry activities focused on musical performativity and Practice as Research in the context of higher music education, playing an integrating role in the construction of knowledge *by* and *for* practitioners.

Keywords: music education; arts research; Participatory Action Research; conservatory system; inquiry-based learning

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1. Introduction

The training system for professional musicians has its foundations in the pedagogical model established by Cherubini at the National Conservatory of Paris at the beginning of the 19th century. Recently, however, the validity of this model has been strongly questioned because of several persistent weaknesses stemming from its conservative tendency. These shortcomings might have led to less permeability to change in the educational paradigms that have emerged over the last two centuries [1]. Under the conservatory model, training is focused on the values of absolute respect for the authority of the composer or instrument teacher [2]. In many cases, this situation could lead to passive attitudes in the educational process on the part of the students, thus weakening the development of their autonomy and self-regulation [3–5]. In turn, this could result in the failure of the development of the critical and reflective competences necessary for a musician to perform professionally in the society of the 21st century [6,7].

Although curricular changes have been observed in the administrative dimensions of this model, these modifications have not been able to penetrate fundamental aspects [8]. The model is structured around four curricular axes that have persisted since the 19th century. They are (1) study of an instrument or voice in individual lessons; (2) aural training; (3) music history; and (4) ensemble performance [2,9]. These curricular axes do not seem to be articulated in a coordinated and interconnected manner, which may produce a fracture between theoretical and practical content [3,8,9]. This fragmented relationship between

theory and practice is rooted in the current training model of professional musicians and has been identified as a threat to the professional development of students [9].

The fracture between theory and practice is not a problem that is unique to music education. It also occurs in multiple areas that are based on what Schön calls the problem of *technical rationality* [10]. As such, it can be speculated that in the West there is a dichotomized epistemology where there are isolated areas that generate theoretical knowledge that practical professionals must apply in order to solve empirical problems [10].

In the case of music, this fracture can be seen in the distinction between the musicological and practical knowledge of instrumentalists and composers. Traditional musicological research has tended to focus on the analysis of the object of the score, leaving aside the performative aspects, which would be more relevant for performance students [11]. Performance Studies in music are based on theoretical frameworks that have been formulated for the analysis of broader phenomena, which have been proposed for the study of various social practices. Performance Studies focus on practices, events, and behaviors and not on objects or things [12]. In the field of music, this conceptual framework has allowed us to move away from analytical conceptions of the object—usually centered on the score as the focus of analysis—to process conceptions which consider the musical interpretation as the central point of study [13]. In the framework of the present study, Performance Studies in music allow the articulation with Practice as Research and with studies on the measurement of agogic described below. Although there is now considerable literature on Performance Studies in music, there is little evidence that its findings have been incorporated into the training system in its initial stages, which seems to continue to function in a regressive and isolated way [8,14].

The paradigm of Practice as Research emerges as a potential solution to filling this gap. In it, the created work of art responds to research questions and the creative process becomes a legitimate mode of inquiry [15]. Practice as Research can narrow gaps between music theory and practice through the construction of knowledge by artists, generating research questions relevant to their practice. This practice could contribute to the development of critical and reflective skills, which are fundamental for the formation of music professionals in the 21st century [6,7].

Inquiry-Based Learning

Inquiry-based learning (IBL hereafter) is an active teaching methodology. It begins with the proposal of a real and meaningful problem for the participants to be solved collaboratively through inquiry [16]. Here, the teacher plays the role of facilitator, empowering participants to adopt an active role in their learning process [17]. There is evidence that a good implementation of the IBL methodology could reduce the fracture mentioned above, allowing for the integrated construction of knowledge [18]. This would lead to meaningful, interrelated learning, which would in turn contribute to the development of autonomy, self-regulation, motivation, responsibility, and critical thinking [16].

The IBL methodology could provide an answer to many of the criticisms that the training model for professional musicians has received. However, its application in artistic environments could present some challenges that need to be considered. First, the teacher as a facilitator model could generate resistance from students, who are used to dominant teacher models. This paradox would appear recurrently in the implementation of student-centered models [19]. In the musical field, it has also been pointed out that students would prefer dominant teacher models, as they expect to be given direct solutions rather than facilitating the development of reflective processes [20].

Second, some authors point out that artistic research and creation are based on different paradigms; the former focuses on abstract products generated by rationality, the latter on processes that emerge from the aesthetic experience [21]. Although progress has been made in the dialogue between these paradigms, which the authors do not consider contradictory, there could be previous preconceptions that could generate resistance among music students in the adoption of this approach. Although the management of preconcep-

tions and prejudices in knowledge is inherent to any teaching activity, special care should be taken in IBL implementations, so that these situations do not become a threat during the autonomous work performed by the students [22].

Finally, there is scarce literature that addresses the paradigm of artistic research in initial musical training stages [23], which generates gaps in the understanding of its effectiveness and relevance, as well as doubts in the use of IBL strategies in the training contexts of professional musicians. For all these reasons, this study put forward and analyzed an intervention proposal based on IBL and Practice as Research aimed at music students. Its pedagogical objective was to strengthen the development of research skills that promote autonomy, critical thinking, and the ability to build knowledge systematically through the resolution of problems associated with their discipline.

The intervention was designed to propose to students relevant and significant problems related to musical practice that they could solve collaboratively through research activities. In this way, it is expected that they can integrate the new competencies in their creative processes and reduce the gap between theory and practice, as well as encourage their autonomy during the initial training stages.

As will be seen below, the intervention was articulated in several phases. This paper addresses the validation phase of the intervention through Participatory Action Research. Thus, the research question is proposed: What strategies can be used for higher-education students of music-related disciplines to develop research skills that help them solve problems in their discipline and, that in this process, re-signify the relationship between theory and practice?

2. Materials and Methods

2.1. Research Design

This study was framed within the sociocritical paradigm, which involves understanding the context under investigation through critical analysis, with the purpose of transforming intervention participants and achieving a genuine understanding of theory through action [24,25]. A Participatory Action Research (PAR, hereafter) design was adopted that attempted to foster knowledge creation through the critical reflection of participants [24]. Two cycles implemented from a strategic action plan were carried out. These cycles were based on the proposal to generate a dialectical spiral between action and reflection, which would be the basis for the improvement of educational practice [26].

As preliminary phases to the PAR spiral, a literature review was conducted, with the purpose of describing the academic culture, pedagogical practices, and cognitive processes associated with the training model of professional musicians. The results of this analysis revealed systemic problems in the training model, particularly the problem of autonomy and the gap between theory and practice [27]. This diagnosis provided the basis for the strategic action plan, which is detailed below in the section on intervention design.

The PAR described in this article includes two cycles of one semester each. Each cycle comprises the following stages: (1) Action, in which the original or revised strategic plan is implemented; (2) Observation, carried out through focus groups and field notes; and (3) Reflection, which involves a thematic analysis of the data collected and allows, after the first cycle, the strategic plan to be revised [28]. Figure 1 summarizes the phases of both cycles of the PAR.

The purpose of the iteration of cycles in a PAR is related to the paradigmatic foundations that support it. The sociocritical paradigm seeks to transform reality, so it conducts research *with participants*, not *about them* [29]. Iteration facilitates the integration of the perspective of researchers, teacher, and students to modify the original strategic plan and validate the intervention. This validation must be understood from the epistemological perspective of the interests in knowledge proposed by Habermas [30], who argues that knowledge obeys different interests—technical, practical, and emancipatory—straining the positivist conception of science as a disinterested contemplation of nature, to present it as a mechanism for generating power. Grundy offers a pedagogical interpretation of

this epistemology, identifying different curricular interests that serve as a basis for the validation of the intervention [31].

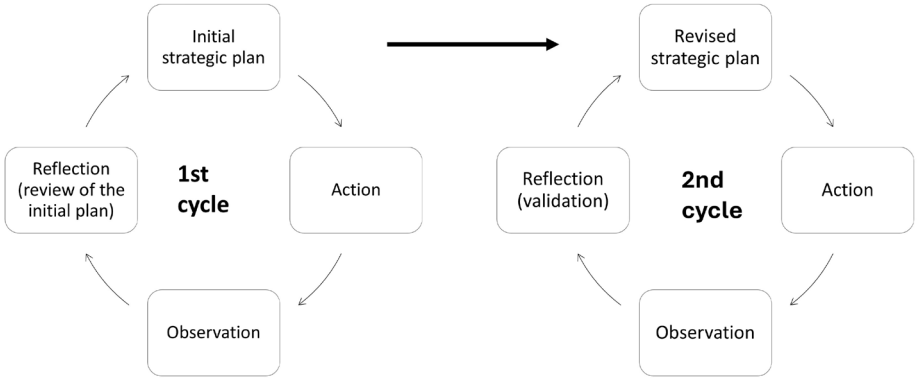

Figure 1. PAR cycles, based on Elliott [26].

The technical curricular approach, linked to the technical interest of mastering nature, translates into the presentation of products that endorse the fulfillment of learning objectives [31]. In the context of this study, the evaluation rubrics applied along with their respective achievement indicators are presented.

The practical curriculum approach is oriented to learning processes and "understanding the environment through interaction based upon consensual interpretation of meaning" [31] (p. 14). In line with this approach, participants' perceptions were collected using the focus group technique [32] at two specific times: at the conclusion of each intervention cycle.

Finally, the emancipatory curriculum approach seeks the transformation and empowerment of participants through educational action [31]. These aspects were addressed through: (1) the negotiation of content, didactic approaches, and the learning objectives; (2) student control and responsibility for their learning; and (3) the linking of theory and practice.

2.2. Intervention Design

The intervention was carried out in an elective course at a private university located in Santiago de Chile. This university has a conservatory that offers performance programs in various instruments and composition, as well as a music pedagogy program. It was offered as an open subject for all students at the university. It was planned by the professor, who fulfilled the role of teacher–researcher, to cover two academic cycles. The learning objectives, activities, and methodology detailed below for each cycle were proposed by the professor and are aligned with the general competencies defined by the university for all its optative courses: (1) use and interpretation of reliable sources of information; (2) application of critical reasoning; (3) oral and written communication; and (4) collaborative work.

In the first cycle, 12 students participated (age 18–28 years; 9 males and 3 females). Four of them were enrolled in music pedagogy, seven were studying advanced performance of various instruments, and one was enrolled in composition. In the second cycle, seven of these students continued. Then, two new psychology students who were interested in the project and had initial musical training joined the group.

The course was developed through weekly virtual meetings. Each of the cycles corresponded to one academic semester. The cycles were planned to span two semesters and were based on the constructivist pedagogical approach and adopted an IBL methodology. Throughout the course, the focus was on the research and analysis of musical performativity. In general terms, the aim for the participants was to construct the knowledge and handling of computer-assisted analysis tools. For this purpose, procedures proposed in research by the Centre for the History and Analysis of Recorded Music and the elaboration of *tempo maps* were used [33]. Tempo maps are graphical representations of the variation of the pulse rate throughout a piece of music. They can be made from an audio file using the *Sonic Visualizer* software [33]. The participants were expected to build knowledge from the IBL based on

topics directly related to their artistic practice, with the purpose of transferring research skills to their creative activity. In the final stages of the course, activities related to Practice as Research were planned.

In order to build learning scaffolds [34], during the first semester, different activities were carried out aimed at a planned project directed by the teacher, so that in the second semester they could generate their own projects. According to some authors, the planning of these learning scaffolds is a critical point for IBL to become a powerful and effective learning methodology [16].

2.3. Planning of the First Cycle

The first cycle of intervention was structured around a general research project proposed by the teacher. The topic was focused on the analysis of the agogic (concept defined for the first time by Riemann as the change of speed in tempo [35]) in different interpretations of Chilean *tonadas* of the western art music (WAM), traditional, and popular repertoires. The *tonada* is a type of Chilean folk song. In its origins, it is presented as a traditional folk song, usually accompanied by a strummed guitar. In the traditional sphere, the tonada is rooted in Chilean rural culture [36]. In this context appears the figure of the *cantora*, a female vocalist and instrumentalist who spread the genre in rural festivities. The work of these singers is known today thanks to the work of compilers such as Violeta Parra and Margot Loyola [37]. From the perspective of the WAM, the Chilean composer Pedro Humberto Allende, who is considered one of the leading figures of Chilean nationalism, wrote between 1918 and 1922 the 12 Tonadas for piano, works in which he mixed the traditional Chilean tonada with European styles [38,39]. The genre was also brought to a mass audience in the mid-20th century through radio, which redefined the style in the popular sphere [40]. As such, the tonada allows us to establish links between the WAM, traditional, and popular genres. The topic, selected due to the design requirements of the intervention, the stylistic breadth of the tonada, and its roots in Chilean culture, was considered a good starting point to focus this first phase.

Based on this general theme, three units were structured, each with an associated research result, with the purpose of generating concrete products. This segmentation facilitated the systematic monitoring of progress, an essential process in collaborative learning situations which, by its nature, can lead to unforeseen situations. Figure 2 presents a summary of the activities carried out during the first semester of the intervention.

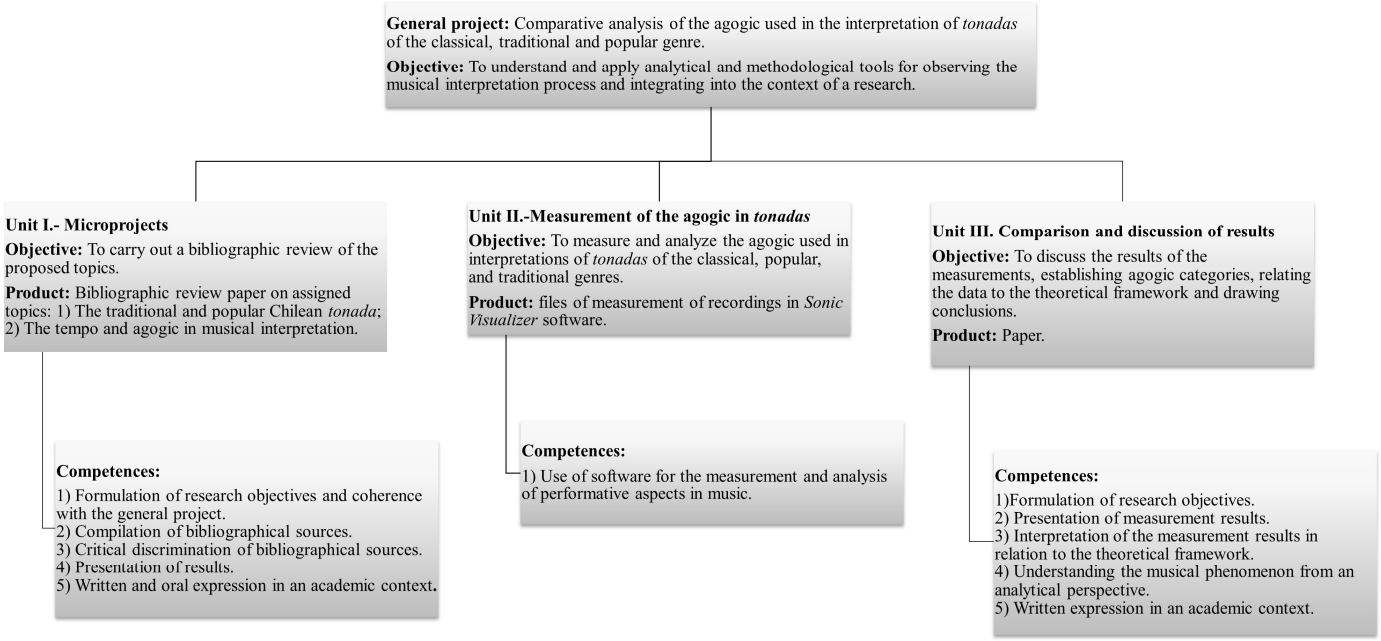

Figure 2. Synthesis of units, objectives, products, and competencies in the first cycle of intervention.

In the first unit of the intervention, *microprojects* were worked on in groups. These were activities of a monographic and documentary nature that nurtured the theoretical and conceptual framework of the main project. Two groups were created with the following themes:

- Group 1: The traditional and popular Chilean *tonada*. Structural aspects, context, main representatives.
- Group 2: Tempo and agogic in musical performance.

The objective was to conduct a literature review on the proposed topics, which the students had to submit in writing and present orally in class. During this phase, they also worked on research methodology content through expository classes: research paradigms, bibliographic review, and use of APA citation norms. The microprojects corresponded to the first group evaluation of the course.

The second unit corresponded to the measurement and analysis of the agogic used in interpretations of WAM, traditional, and popular tunes, by means of computer-assisted analysis. *Tempo maps* were made using *Sonic Visualizer* software v4.3, following the methodology proposed by Cook and Leech-Wilkinson [33]. Each participant had to create tempo maps with the results of measurements of a tonada of the WAM genre and another traditional or popular version. In the software, the students had to record and rectify the beats during the recording, the measures, and the phrases, and from that, calculate the value of the pulse in BPM throughout the execution. A measurement protocol was created and used to structure the evaluation rubric. This also allowed for homogeneous results that could be used consistently in contrasting measurements.

In the third activity, the measurements made were gathered so that the groups of students could explain and discuss the results, relate them to the theoretical framework—established from the microprojects of the first unit—and reach conclusions, as well as reflect on the limitations of the work. This was presented in written form for the third evaluation.

2.4. Second Cycle Planning

The second semester was also divided into three units. Given that in the previous semester a research experience directed and planned by the teacher had been addressed, it was expected that in the second cycle the students would construct knowledge with greater autonomy. Some authors [16] consider that, in order to achieve effective learning in IBL strategies, the construction of learning scaffolds is fundamental. For this reason, the second cycle was planned so that they could apply the learning and competencies developed in the first cycle but focused on a research project that they had to propose, contextualize, and support autonomously. The summary of activities carried out during the semester is shown in Figure 3.

In the first unit, groups worked on a research project proposed by the students according to their interests. Preliminary projects were presented following the same criteria as in the previous semester: contextualization, construction of a theoretical framework, determination of research objectives, and methodological basis.

In the second unit, they had to measure their projects, discuss the results, and present them in a research report in the Introduction–Methods–Results-and-Discussion format.

Finally, in the third unit, the students had to present the results orally and perform the analyzed repertoire according to the agogic categories that emerged from the analysis. The relationship between research results and performance frames these activities within the paradigm of Practice as Research. In this sense, an integrative relationship was sought between this paradigm and more traditional research approaches that had been worked on in previous activities. Thus, an attempt was made to reduce the gap between theory and practice, and to distance the process from the concept of technical rationality [10], which postulates that the practitioner—in this case, the performer—does not generate knowledge but simply applies it.

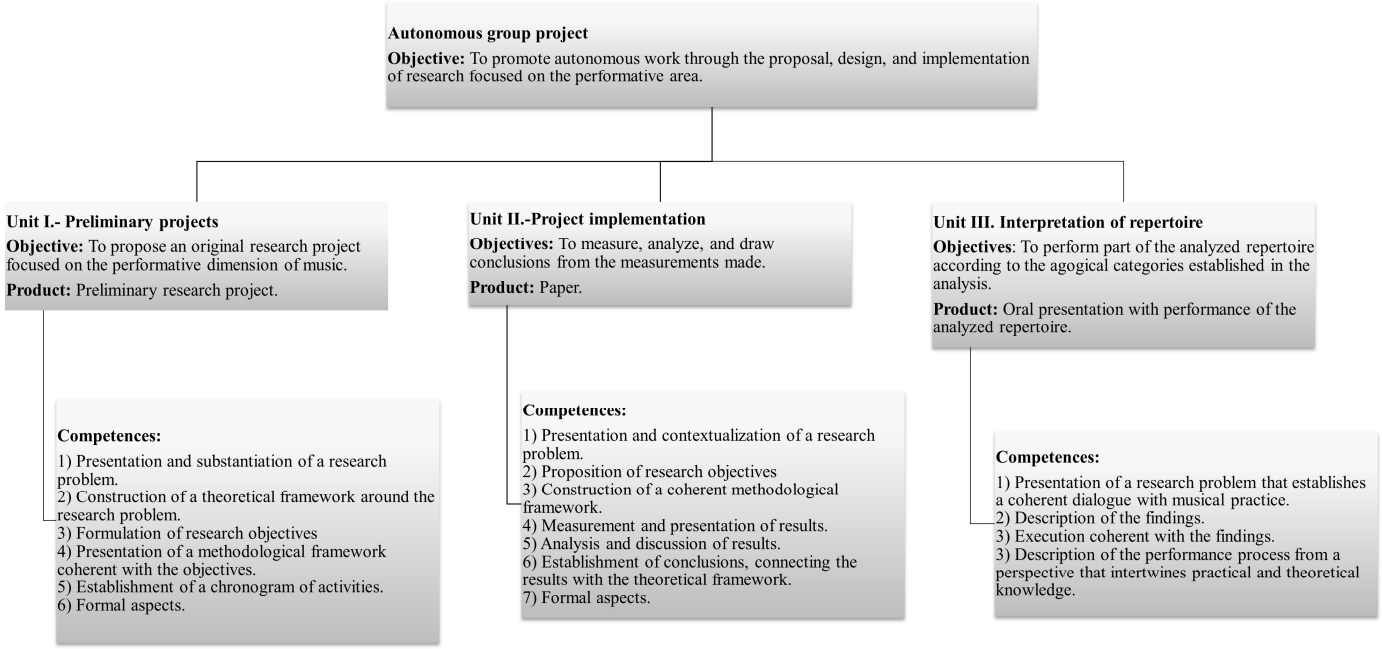

Figure 3. Synthesis of the units, objectives, aspects to be evaluated, and competencies developed in the second cycle of the PAR.

3. Results

For a better understanding of this study, the results are presented below, arranged according to the PAR cycles. The learning results are presented in graphs. In each of these graphs, reference is made to 60% achievement, which is the percentage commonly used in the Chilean system to establish passing a subject. All evaluations were graded by the teacher. To measure the learning outcomes, rubrics were applied to each of the products to be delivered in each unit. These rubrics were elaborated by operationalizing the objectives and competencies of each unit, the synthesis of which is presented in Figures 2 and 3. Each of the evaluations presented refers to units whose objectives, competencies, and activities were detailed in the previous section on cycle planning.

3.1. First Cycle

The learning results of the first activity, which included the group work of bibliographic review of the proposed topics, are presented in Figure 4.

It is important to note that, in accordance with the expected competencies, the literature review was to be integrated into a research project, establishing objectives consistent with the focus of this study, to become the theoretical framework of the main project. Almost all the expected learning outcomes for this first unit were achieved. A deficient result was the selection of reliable bibliographic sources, due to the participants' inexperience in research topics. Other deficiencies included some formal aspects, for example, the use of academic citation standards (Figure 4).

The product of the second unit corresponded to the creation of tempo maps based on the measurements of the agogic—in a corpus of traditional and popular *tonadas*—from a measurement protocol. The learning results of this activity, which was individual, are presented in Figure 5.

In general, the results show consistency with the expected learning objectives (Figure 5). However, it is worth mentioning that there were differences in the measurement of tunes of the WAM genre compared to tunes from the traditional and popular genres. This could have been due to the difficulty of recording and rectifying each keystroke in performances of the WAM genre, given that a much more flexible tempo is used.

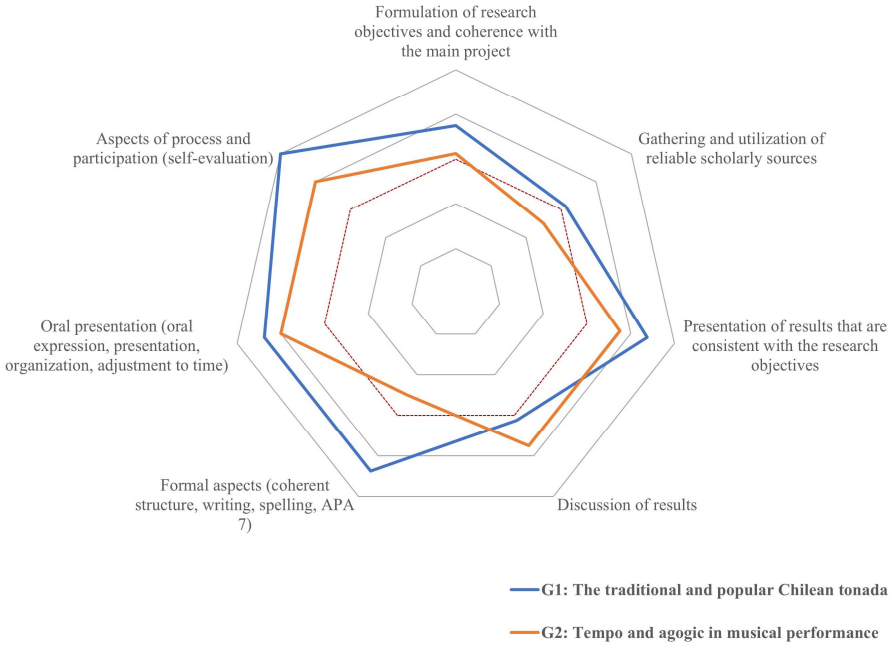

Figure 4. Indicators of achievement of competencies in activity 1 for each of the groups. The dotted red line establishes 60% achievement.

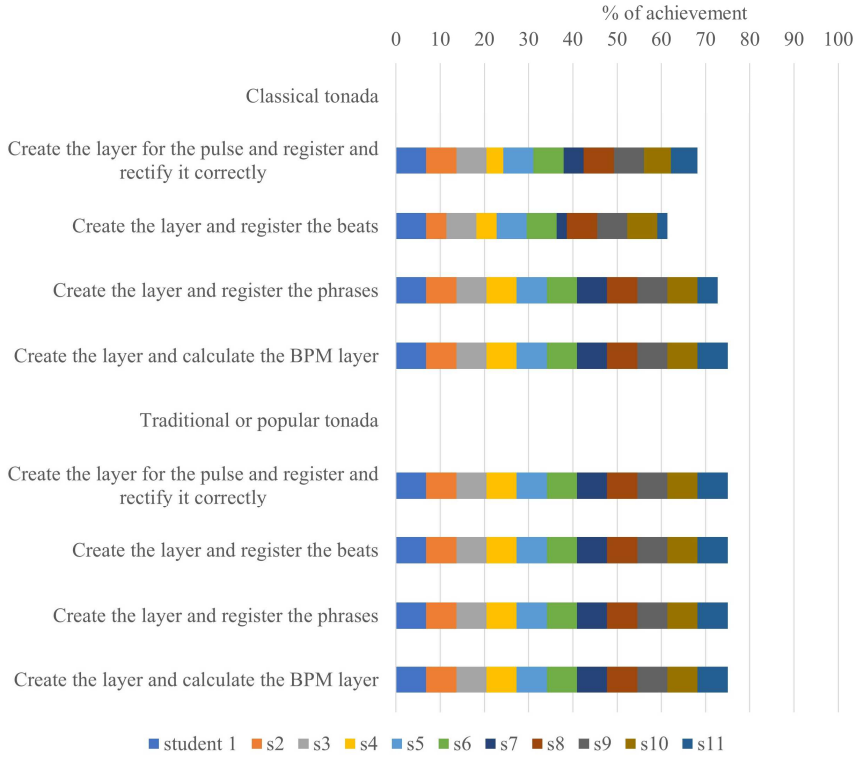

Figure 5. Indicators and results of the second evaluation.

The last activity of the first semester corresponded to the interpretation of results and their discussion with the theoretical framework of the project, which the students themselves had established in the first activity.

These results also show coherence with the objectives of the unit, although there were differences in relation to the use of bibliographic citation standards, the formulation of research objectives, and the ability to discuss the results obtained with the theoretical

framework (Figure 6). These last indicators are strictly related to the intervention objectives, so the decision was made to reinforce the activities related to these skills.

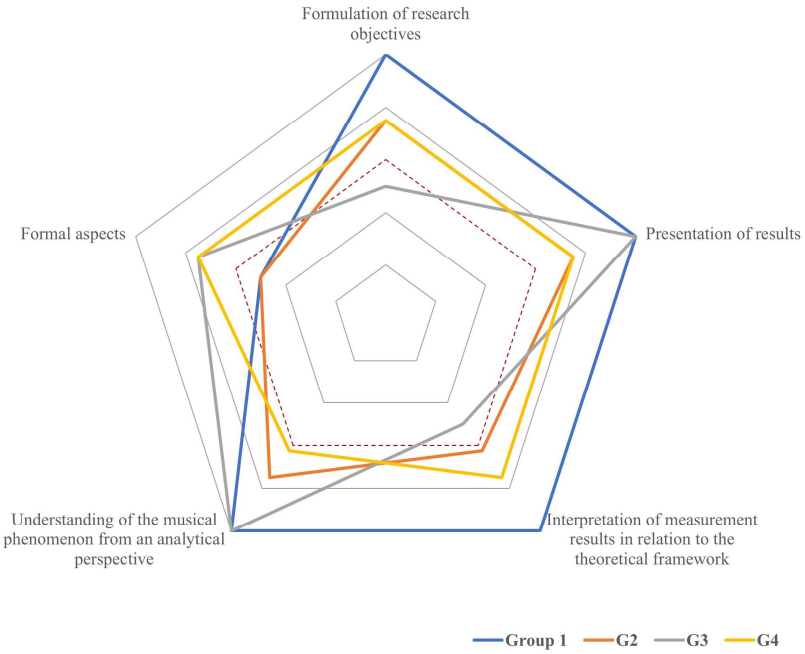

Figure 6. Indicators of achievement of the competencies in activity 3 of the discussion of the results.

From the teacher's perspective, it could be observed at the end of the first semester that leadership was being built within the groups, which favored the resolution of tasks in an autonomous manner. In addition, the students felt committed to the project and the research throughout the process.

3.2. Fulfillment of Objectives and Expectations during the First Cycle

One of the objectives of the intervention was to develop the ability to pose, analyze, and solve problems associated with their discipline from an academic and systematic perspective. In this regard, one participant noted:

> This need to generate knowledge, in fact, has already helped me. I have included it (the knowledge) in the compositions that I have had to do in the conservatory (student 6, composition, focus group 1).

Participants pointed out that they were applying the skills developed in the course in their artistic activity, and that this had fostered a reflective attitude. The transfer of knowledge and research skills to artistic activity was of vital importance in the design of the course, allowing the students to engage in reflection in action, breaking with the dichotomy between theory and practice. It is revealing that, parallel to the practical application in artistic activity, one student reported an improvement in his perceptual skills: "by listening to (music) I am noticing things that I didn't do before" (student 10, interpretation, focus group 1). The development of perceptual musical skills through reflective processes is something that was not originally anticipated. This phenomenon deserves to be investigated in future research. Regarding the fulfillment of course objectives and expectations, there was consensus on their achievement.

Schön argues that practical practitioners tend to employ tacit knowledge in their actions [10]. This is consistent with the description of the formative model laid out in the Introduction, which reveals a limited interaction between practical and theoretical curricular components [3,8,9]. It is also consistent with the data obtained in the diagnostic evaluation before starting the course activities; participants manifested a dichotomized conception that related research to theoretical elements that they had considered distant

from musical practice. In that sense, participants' comments after one semester of intervention confirmed progress in the right direction. Students were building knowledge from the different activities related to IBL; some even applied that new knowledge in their artistic practice. They also considered the learning outcomes from the course to be meaningful and relevant to their artistic–professional training. This validates the intervention from the point of view of the generative themes: the participants would be re-signifying the research skills and integrating them into the creative activity.

3.3. On Autonomy in the First Cycle

One of the main objectives of the course was to encourage student autonomy. Some people had different ideas at the beginning of the course, but by the end of the semester they realized the importance of autonomous work.

> . . . I came into the course with the idea that I wouldn't have to make that much of a decision. I thought we would just have to do assignments and that would be it. Then I realized that it wasn't like that. And I learned quickly because you (the teacher) told me: you must do it yourself. The criteria you use is what counts. That's where I learned to make decisions (student 6, composition, focus group 1).

Accordingly, it is inferred that the participants positively valued the role of the teacher as a facilitator of learning. Initially, the students expected a more authoritarian approach; however, during the development of the course, they were presented with a facilitator teacher model that promotes autonomous problem solving [17]. This methodological change was validated by the students, who recognized the effectiveness of an educational model that encourages autonomy:

> . . . so that freedom helped us to generate knowledge. . . It is a tool of autonomy that I acquired to be able to develop the work. It allows you to do something with data that you can look up yourself (student 9, music pedagogy, focus group 1).

This leads to the passive role that students may acquire because of the conservatory model [3]. While this could occur under a dominant teacher model—and many would prefer it [19,28]—the observations from the generation of opportunities for autonomous work point to the fact that the groups were organized collaboratively, with minimal teacher intervention. This was positively valued by most of the participants, who even managed to transfer the knowledge generated to artistic practice. However, some people felt that they lacked further guidance:

> Perhaps it would be good to have more guidance on (how to perform the work). . . at the beginning the activities took us much more time than would be ideal, perhaps because we did not know how to start or were confused about where to start from (student 1, interpretation, focus group 1).

It is important to analyze this perspective. To encourage autonomy, it is essential to let the participants make their own decisions. This is of value to the group, but some feel that they would make faster progress when the teacher tells them exactly what to do. This highlights an expectation of the dominant teacher, who might be seen by the students as more effective because it takes them less time to complete the planned activities. This confirms the paradox posed by Rogers and Freiberg, that the figure of the teacher as facilitator could generate resistance [19]. However, the perspective mentioned above was not shared by most of the participants. In this regard, one participant responded:

> I think that what you mentioned about the first assignments (the lack of guidance from the teacher), I think that was good, because that way we take charge of our own way of working. That you look for your own ways of working, I think that is also valuable, because once you incorporate it, you improve it as you go along with the work (student 10, interpretation, focus group 1).

Based on the analysis of the results of the first intervention cycle, the following modifications were made to the original plan:

1. Reinforce content related to the formulation of objectives and discussion of results. This is due to the low level of achievement in this dimension in some of the evaluations.
2. Put special emphasis on the students' understanding that one of the objectives of the course is to develop autonomy competencies, so they should not expect guidance from the teacher in all topics. This could foster in the students a mental model of the facilitating teacher.

In general, at the end of the first intervention cycle, it was observed that the participants' initial expectations about the course were being met, as well as the planned objectives. Regarding the evaluation procedures, they considered that they had been adequate. No major divergences were perceived between the students' and the teacher's *generative themes*, so it was not necessary to modify the initial objectives. The course was perceived as motivating in the proposed projects, working and solving problems autonomously, and developing reflective skills through participation in a research project. Several students stated that they were applying the knowledge and skills acquired during the semester in their creative musical activity.

3.4. Second Cycle

To consolidate the research skills developed during the first cycle and promote autonomy and self-regulation, each group was asked to propose and justify their own research topic for the second semester. The projects presented were:

1. Group 1: Inégalité in the Baroque: Investigation and use of the interpretative resource in a work by J.B. Lully.
2. Group 2: Rhythmic resources in the interpretation of Moonglow, by Artie Shaw and Benny Goodman.

As a first activity, each group had to present a preliminary research project. Figure 7 shows the results of this evaluation.

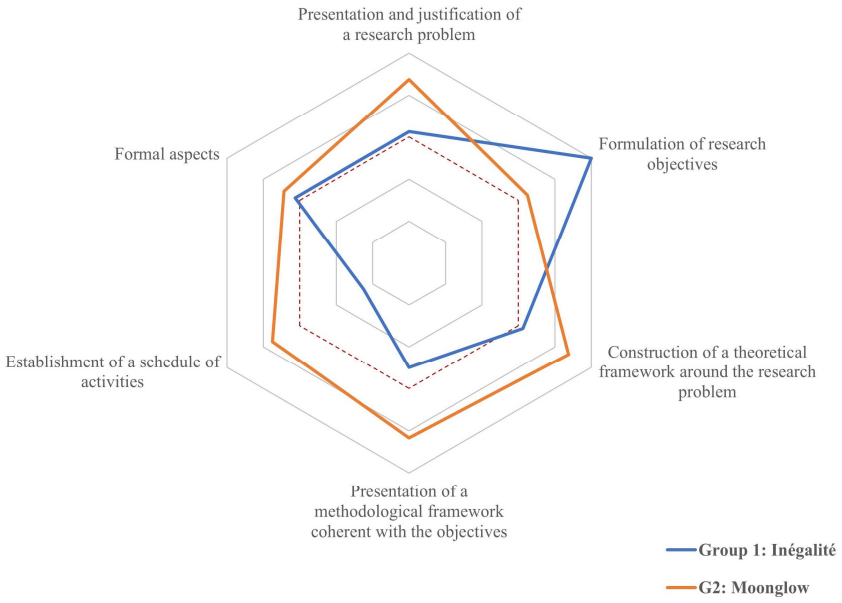

Figure 7. Evaluation of preliminary research projects.

In general, the learning objectives proposed for the unit were met, although a deficiency was observed in the establishment of a work schedule in one of the groups. As the second activity of the cycle, they had to take the data corresponding to each research project, which implied taking measurements of the agogic of the proposed repertoire, and interpreting and discussing the results, to present them in writing in the Introduction–Method–Results-and-Discussion format (IMRaD) format. The results of this activity are presented in Figure 8.

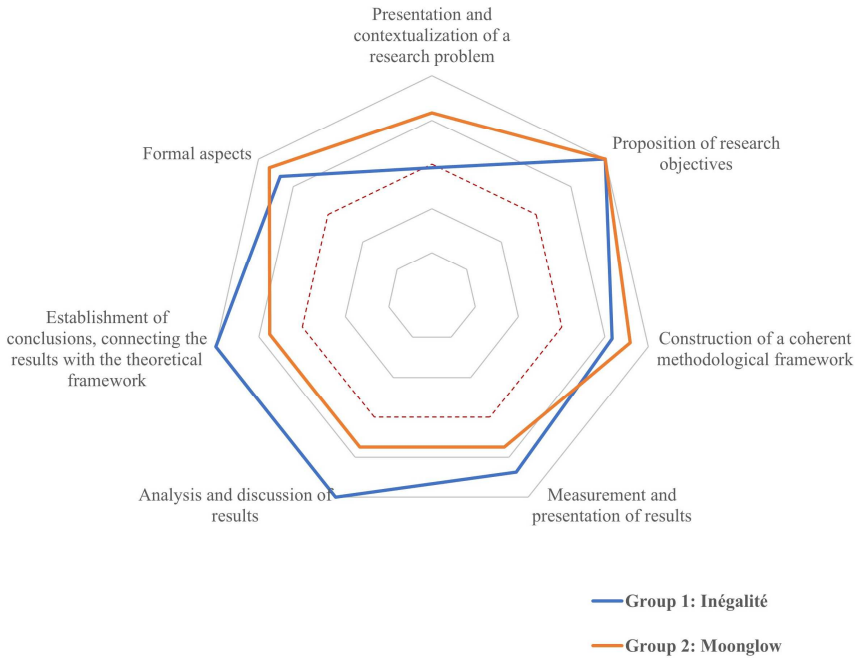

Figure 8. Evaluation of research reports.

In general, compliance with the learning objectives was observed. In one of the groups, the indicator of presentation and contextualization of the research problem appeared somewhat low, but the group did reach 60% achievement in this dimension. Figure 9 shows the results of the last activity of oral presentation of the results and performance of the analyzed repertoire.

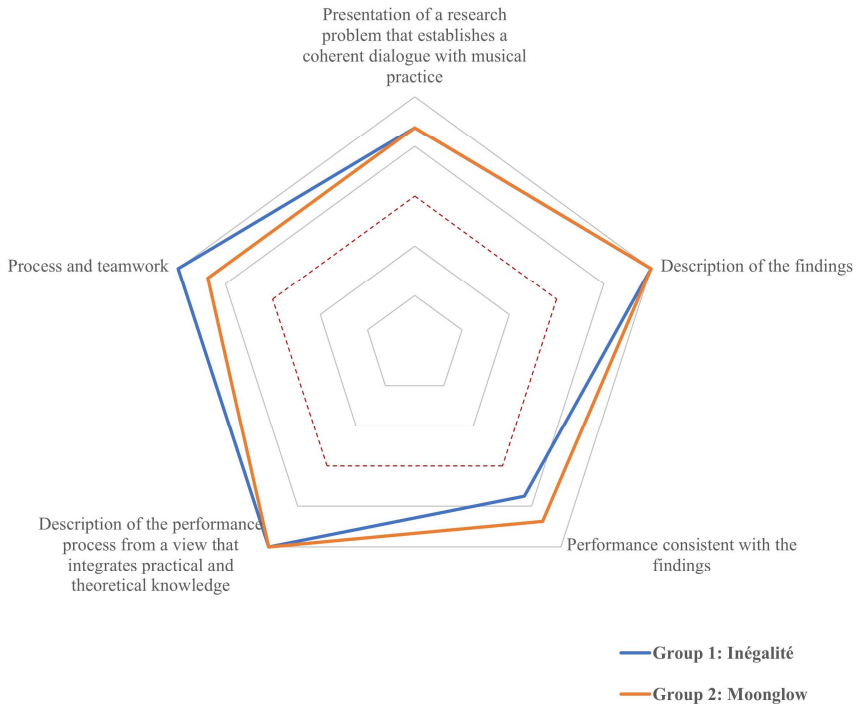

Figure 9. Evaluation of repertoire interpretation.

In general, the results of this evaluation are congruent with the objectives proposed. All groups presented a research problem related to musical performativity. The research was successfully articulated with the instrumental performance: each group performed several versions of the repertoire from different perspectives—according to the agogic categories

that emerged from the analysis of the results—showing a consistent theoretical discourse that supported the different interpretative possibilities. In this way, theory and practice were articulated in a coherent and intentional manner, supported by the research products.

3.5. Regarding the Development of Autonomy in the Second Cycle

As indicated above, during the second cycle, the idea of the importance of autonomous work was reinforced. During the first cycle, researchers observed good group functioning: the students managed to organize themselves to carry out the work collaboratively and there were clear leaders. The researchers identified an opportunity to further enhance this aspect, and the planning stage was redesigned so that the topics of the projects were proposed by the students. In contrast to the first semester, when some tension was observed regarding autonomous work, the perceptions of the participants during the second cycle emphasize its importance:

> (The promotion of autonomous work) is important. I think that what characterizes a professional is his or her autonomy when it comes to making decisions. Once you are a professional, nobody is going to be there behind you supervising you (student 2, interpretation, focus group 2).

In this cycle, the facilitating teacher model was predominant, in contrast to the first semester when at certain times the teacher took on the role of an expert to present some content [17]. In the weekly meetings, students presented their progress and the professor asked questions to guide their research, promoting the development of criteria so that they could make informed decisions, thus encouraging autonomous work. This was perceived by the students, who indicated that this environment motivated the development of autonomy:

> The fact that we met once a week, but not with a notebook, taking notes on an expository class, but to follow up on a project. I think that developed our autonomy... The fact that we saw each other weekly, in a format that was a bit free of conversation and follow-up, helped us organize ourselves and delegate work (student 2, interpretation, focus group 2).

The students also had a positive perception of the way in which the learning scaffolds were built throughout the course:

> The measurements we worked on during the semester served as a base, but they were not exactly what we needed to build our (second investigation. We had to modify the way we took the measurements. Those kinds of things also helped our autonomous work. Having to design our own research and design our own data collection and analysis techniques (student 1, music pedagogy, focus group 2).

3.6. Evaluation of Course Learning

The participants positively valued the learning developed during the course. They consider that research focused on musical performativity is a significant topic for their professional development:

> Performance analysis helps to change the paradigm regarding music education... So, I feel that it has been a help to change to a slightly more complete vision of my understanding of music as a phenomenon (student 1, music pedagogy, focus group 2).

They consider that research activity can become a relevant tool in professional artistic contexts:

> It is very important to feel capable of having a concern about something and being able to generate an investigation about it (student 2, interpretation, focus group 2).

4. Discussion and Conclusions

Results have been presented that confirm the fulfillment of the original purposes of the intervention with a product-oriented approach. From the perspective of the validation of the intervention, it is crucial to highlight the achievement of the learning objectives, suggesting the possibility of developing research skills in the initial formative stages of musicians, which could be relevant in the curricular design of music programs. The results suggest that it is not necessary to wait until the last year of training to involve students in research projects: a good IBL design that considers the progressive construction of scaffolding allows participation in activities of this nature in early formative stages. This represents an important learning opportunity; the development of research competencies allows for cross-cutting dialogue between the curricular axes of the conservatory model.

Furthermore, a transformation in the participants' perception of the inclusion of research in creative processes and in the importance of autonomy in artistic training can be inferred throughout the two cycles. The participants, initially with a dichotomous conception of research and artistic practice, gradually incorporated acquired skills to their creative action, finally visualizing their potential and relevance. A similar process was observed in the perception of the teacher-as-facilitator model. Initially, a teacher was expected to provide solutions, generating some tension when this expectation was not met. However, over time, the participants came to appreciate the importance of autonomous work and decision making for their professional development.

The intervention also gave a voice to the participants, through different negotiations that took place throughout the intervention. The data mostly show a significant empowerment of the participants throughout the process, based on the conviction that they themselves can carry out research and build new knowledge. This can be interpreted as a turn towards an emancipatory orientation of the curriculum, based on reflective, autonomous, and responsible action.

Finally, the comments support that the intervention allowed participants to build a new relationship between theory and practice. Praxis, understood as a dialectic between action and reflection, became evident in the final activity, in which students were able to perform and argue their performance with knowledge that was not tacit. This shows a profound integration of aspects that are often dissociated in musical practice.

Thus, the intervention based on IBL is validated by the three fundamental interests: technical, practical, and emancipatory [30,31].

The intervention was designed and validated in a specific context, which is why its results are not generalizable. A new diagnosis and eventual adaptation would be required for its transfer; however, points emerge that can nurture the general discussion about the approach to research competencies and collaborative work-in-training programs for professional musicians.

First, the data presented evidence that the participants were able to develop collaborative work promptly, so it could be inferred that the individualistic and isolated orientation detected by some analysts in the model [14] could be addressed by proposing curricular activities that encourage this type of work.

On the other hand, the results of this research reveal an important paradigm shift in the conception of knowledge in the musical domain. Despite the entrenched notion that knowledge generation is reserved primarily for musicological research, the data support the idea that participants were convinced that when provided with the necessary tools, practitioners can be active agents in knowledge construction. During the intervention, musicians-in-training engaged in an IBL-based research project, which allowed them to build knowledge and develop skills that enable them to transcend tacit knowledge. This challenges the predominant epistemic conception of *technical rationality*, encouraging a reflexive practice [10].

It also confirms the paradox of student-centered models. In these models, a teacher who adopts a facilitator role could face resistance from students, who would expect a dominant teacher to provide them with solutions to their problems and tell them what to

do. In this context, the development of self-regulatory competencies could be limited, as some students would prefer to assume a passive role. However, at the same time, the emancipatory potential of active methodologies such as IBL is also shown. Once participants understood this new model, they became engaged and appreciated its potential.

Finally, this study aims to contribute to the discussion of the pedagogical potential that Artistic Research could have in the initial training stages of musicians. Although to date there has been an abundant and necessary discussion about the epistemic validity of this paradigm, little has been discussed about its pedagogical potential.

From this perspective, the present study proposes a concrete pedagogical alternative that seeks to solve the lack of interaction of the curricular axes present in the formative model proposed almost 250 years ago. This could be achieved by integrating lines related to the investigation of musical performativity and Practice as Research. To bring this to fruition, it is crucial to recognize and value the ability of musicians to actively contribute to the advancement of knowledge in their area. Likewise, the importance of continuing with research that offers concrete and integrative curricular alternatives that are not based on epistemological conceptions that dissociate theory and practice is evident. This would allow the training model for musicians to move away from 19th-century pedagogical conceptions and approach, through the development of critical and reflective skills, the demands of a 21st-century professional.

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