5. TRANSDISCIPLINARY DIMENSIONS OF MUSIC EDUCATION: TERMINOLOGICAL AND CONCEPTUAL APPROACHES

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Abstract: *Complex and integrated nature of issues such as globalization, migration, interculturalism, environmental protection, information explosion, claims a transdisciplinary approach to education and music education. To cope with changes characteristic of the contemporary world, students need as generic skills: the ability to learn how to learn, ability and problem-solving assessment. Transdisciplinarity - involves such issues often highly complex, using tools and rules specific to certain science investigations using concepts of these sciences, but in other contexts. Students are interested in concrete problems faced in everyday life and looking for more of these explanations and practical solutions. To identify issues related to cross-disciplinary dimension of music education concepts will investigate disciplinary, multidisciplinary, interdisciplinary are four arrows of a single bow: knowledge.*
Key words: *transdisciplinary, lifelong education, skills transdisciplinary musical education*

"As we are at the moment of intelligence revolution, it is necessary to understand that transdisciplinarity helps to discover the poetic dimension of the existence, being situated beyond other disciplines. It is worth pointing to the fact that this term is different from pluridisciplinarity and interdisciplinarity". (Basarab Nicolescu)

1. Introduction

Transdisciplinarity is a new initiative that combines old esoteric traditions of contemporary science. It is a visionary and operative way that addresses to the new awakened knowledge, having at the same time a rigorous way of action [3]. That is the reason that has brought to the development of a new vocabulary. This new discipline connects arts with sciences, scientific thinking with artistic thinking, knowledge with being. It tends to the unity of knowledge, passing obligatory through self-knowledge process. The terms *inter / pluri / multi / transdisciplinarity* have stirred a lot of discussions in the field, although there are very few schools in the world that use this concept in their curriculum.

2. Discussions

In the last decades, the world has faced a series of challenges due to the social movements, the music education, in this context, does the same. The complex approach is the main feature of these challenges. We strongly believe that music pedagogy has not faced such complex problems, both in terms of causes and effects, and impact on students (Petrescu, 2007). Today we all understand that any kind of education should prepare the students to integrate in the job market. The students have to be empowered with the ability to learn,

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critical thinking techniques and evaluation strategies. To cope with continuous changes and uncertainties intrinsic to market economies, students need strategic skills such as the ability to learn how to learn, problem solving and assessment skills. Thus, the education system has to be altered in accordance with the new social changes to help students to act appropriately in different circumstances (Cucoş, 2014).

We would like to use a metaphor to support our point of view: "disciplinarity, multidisciplinarity, interdisciplinarity and transdisciplinarity are four arrows of one and the same arc of knowledge" (Iucu, 2001). The integration process has several stages that can be regarded as steps towards transdisciplinarity: *Mono-disciplinarity* focuses on independent disciplines, on their specialty. It promotes their superiority compared to traditional disciplines. Integrational items may occur at this stage at least in two ways:

a) *insertion* of a part in a discipline content structure (a different discipline part gets inserted in the content of a subject and it helps to clarify a topic or an issue);

b) *harmonization* of independent fragments of the object of study to lead to a better problem solving, to a more complete understanding of a subject or to the development of certain skills and attitudes.
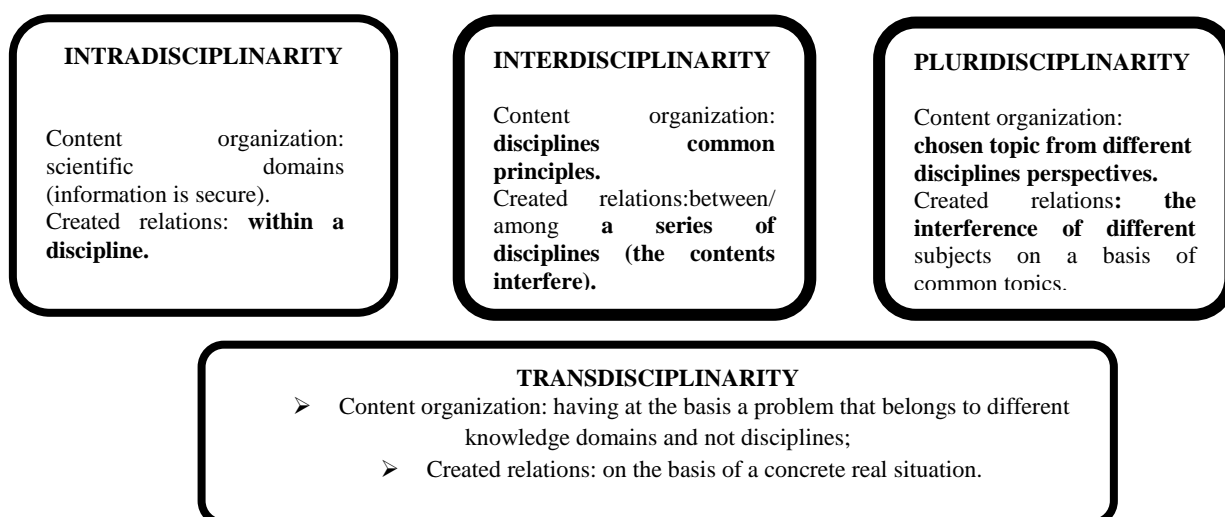
Pluridisciplinarity (multidisciplinarity) refers to the situation where a topic is analyzed from the perspective of several disciplines, retaining its structure unaltered and remaining independent in relation to these disciplines. The advantage of this approach is that the applied disciplines clarify the investigated topic more deeply. At this stage, we speak of a *correlation* of approaches to solve a problem from several points of view. A good example of this is the issue of *cloning*, usually treated in genetic studies, but equally relevant in ethics, psychology, political science, chemistry etc.

Compared to pluridisciplinarity, interdisciplinarity implies *intersections* of different subject areas that might give birth to new objects of study. Generally speaking, these "hybrid" disciplines appear to satisfy some interdisciplinary needs, that means the lacks between different disciplines, as for example music pedagogy + art = art pedagogy; psychology+ music = music psychology. The interdisciplinary approach washes the limits between the disciplines and the new common topics of different subjects are being looked for. This thing can lead to the achievement of higher levels of learning and the development of metacognitive skills such as *decision making, problem solving, effective learning techniques and methods etc.* B. Nicolescu is sure that interdisciplinarity implies the methods transfer from one discipline to another. The scientis temphasizes three degrees of interdisciplinarity:

a) a degree of application: the methods transfer leads to concrete practical applications;

b) an epistemological level: the assimilation of other discipline methods, the new discipline develops its own epistemology;

c) a degree generator courses: the methods transfer from one discipline to the other leads to the appearance of an autonomous domain.
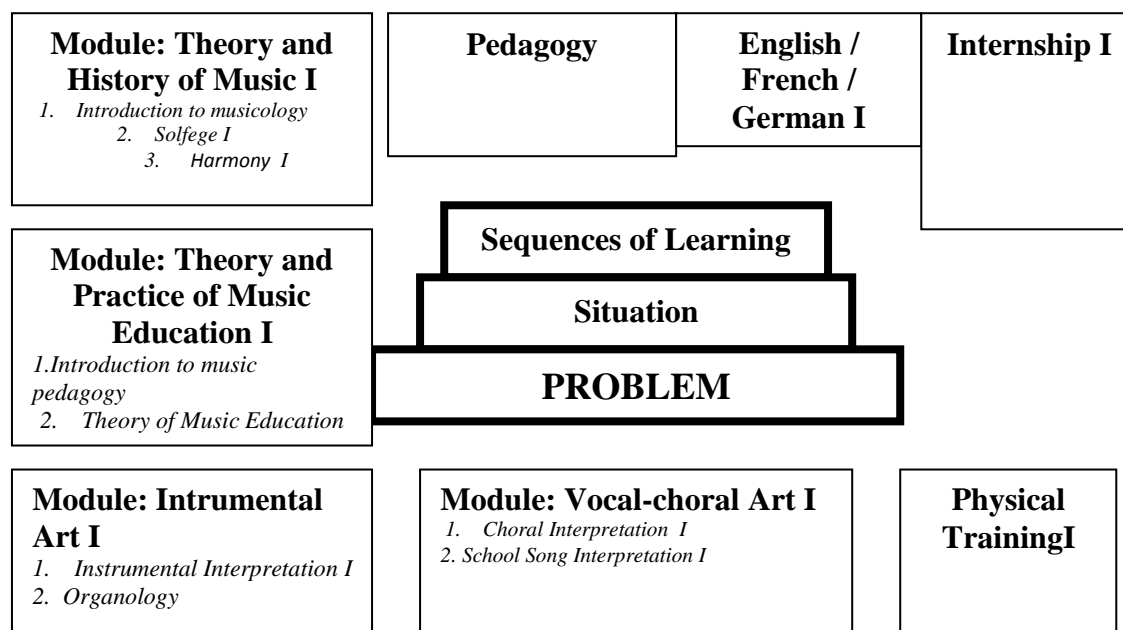
Transdisciplinarity is a process of a complete discipline and it has the highest degree of integration. It is, therefore, the most complex phase of integration and more radical. Transdisciplinary approach tends towards a "joined up" of the involved subjects. The merge of information of the various disciplines leads to the emergence of new fields of investigation, the development of integrated projects or the designing of a new paradigm research programs. Transdisciplinarity is an engine that puts into action a common set of features of the merged disciplines. Transdisciplinarity includes the other three approaches from the point of view of its degree of complexity. It should be emphasized that the recognition of the above mentioned transdisciplinarity feature does not ignore the complexity of the other three approaches (interdisciplinarity, pluridiscilpinarity, andintradisciplinarity). Transdisciplinarity, although presented in correlation with other approaches aiming to organize content into existing subjects, is different. This fact can be observed in the figure below (Figure 1):

Figure1.Content Organization on domains.

INTRADISCIPLINARITY	**INTERDISCIPLINARITY**	**PLURIDISCIPLINARITY**
Content organization: scientific domains (information is secure). Created relations: **within a discipline.**	Content organization: **disciplines common principles.** Created relations:between/ among **a series of disciplines (the contents interfere).**	Content organization: **chosen topic from different disciplines perspectives.** Created relations**: the interference of different** subjects on a basis of common topics.

TRANSDISCIPLINARITY
- Content organization: having at the basis a problem that belongs to different knowledge domains and not disciplines;
- Created relations: on the basis of a concrete real situation.

In this context, content organization is made: (1) vertically that is represented by intradisciplinarity, (2) horizontally – interdisciplinarity, (3) transversally - pluridisciplinarity; (4) extraversally - transdisciplinarity. So, the transdisciplinary content organization requires flexibility and leads to suppression of the traditional content organization. It is referred to as "Squaring the square (problem solving / attitudes and skills formation; situational learning approach; sequences of learning; all these contributing to the formation of the future student). The problem must contain a contradiction, a choice, an argument, a challenging, and a doubt. It should be used as a starting point both in formulating the situation and in learning the goals. The problem requires a state of tension, which gets the student motivated. Still, the outcome of transdisciplinarity should be taken into account. It is the vitalistic attitude of the student (Figure 2):

Module: Theory and History of Music I	Pedagogy	English / French / German I	Internship I
1. Introduction to musicology 2. Solfege I 3. Harmony I			

Module: Theory and Practice of Music Education I
1.Introduction to music pedagogy 2. Theory of Music Education

Sequences of Learning

Situation

PROBLEM

Module: Intrumental Art I	Module: Vocal-choral Art I	Physical TrainingI
1. Instrumental Interpretation I 2. Organology	1. Choral Interpretation I 2. School Song Interpretation I	

Instrumental transdisciplinarity aims to provide the student methods of intellectual work that might help in solving problems he faces. Its advantage is the orientation towards developing problem-solving skills mostly.

Behavioral transdisciplinarity has the aim, as D 'Hainaut points out, to help the student "organize each of his actions in different situations". This approach is directed towards the students that learn, as the psychology of learning is taken into account. The behavioral transdisciplinarity is tightly connected to life situations that are extremely important for those that study. As transdisciplinarity is believed to open the doors to a higher epistemological level, it is regarded as a "new worldview." This assertion comes from objective of transdisciplinarity that can help to clarify the multiple and complex challenges of the present world. Returning to the concept of curriculum integration, understood as the process of establishing relations of convergence at the level of content elements, objectives or methods, but also in concepts or values, it is worth mentioning the horizontal and the vertical types of integration. D'Hainaut identifies three types of transdisciplinarity, depending on horizontal, vertical or transversal tracks. The scientist summaries the principles, the concepts, and the theories through a set of verbs: *to communicate* (reception), *to communicate* (issuing), to *react the environment, to translate, to adapt, to anticipate, to learn, to decide, to choose, to appreciate, to consider the action, to act, to apply, to solve problems, to create, to convert, to organize, to lead, to explain, to abstract, to prove*. All the above mentioned verbs help the scientist to emphasize the importance of transdisciplinary competences, pointing, implicitly, to different degrees of transdisciplinarity (fundamental concept of the Transdisciplinary Group from CIRET, Paris).

Horizontal integration brings together in a coherent whole two or more subjects belonging to different fields (or subject areas). Thus, the process of the following subjects integration: geography, biology, chemistry, ecology, civic

education, music education, etc., works beneficially on the process of studying the topic "Music education for the environment". *Vertical integration* brings together in a coherent way two or more subjects from the same area (curricular area, for example "arts"). A clear example may serve the integration of literature, choreography, visual arts, etc., in studying the topic entitled "Music and other Arts." The curricular integration has two purposes:

a) linking different segments with in the study programs;

b) networking the learning process with real life situations.

Transdisciplinarity issue has, at least, two essential aspects:

a) *philosophical side,* which is promoting a vision and a new understanding of reality, in general, and of the educational reality - *transdisciplinary attitude;*

b) *methodological side,* which implies the development of specific ways to use integration in education –*transdisciplinary competence.*

The fundamental objective of any educational system is to offer the students general education. In accordance with this objective, all the integrated disciplines have to work through transferable elements, elements that provide a general or a common character. In this way, the curriculum goes beyond the topics, objectives, and methods of a single discipline, and it is sure to form specific skills necessary for the personal development of the student. Thus, some long-lasting skills can be formed on the basis of such an open and flexible education. *Integrated approach, so peculiar for transdisciplinarity,* is based on real world, on relevant aspects of daily life, presented as they affect and influence our lives.

Integrated transdisciplinary curriculum focuses on real life issues, with a focus on identifying solutions, solving genuine problems of life, and developing transversal competences. The advantages of the transdisciplinary approach are:

– It offers students the appropriate formal knowledge organization;

– It is suitable for all levels of intellectual ability or learning style;

– It is fully participatory, student-centered, based on previous experience;

– It requires the use of any active teaching style;

– It has a high degree of complexity, both in terms of content and methodology approach;

- It is constantly refined, updated as a result of feed-back.

The transdisciplinary skills are classified as follows:

• general methodological skills: observation, experimentation, graphical representation, text or data interpretation;

• metacognitive skills: assessment of the degree of task difficulty, strategic planning, performance evaluation, behavioral monitoring, personal learning techniques;

• positive, motivating attitude: realism, interest for learning, tolerance for conflicting information, positive attitude to personal performance;

• pragmatic skills: personal initiative, ability to concentrate, targeting actions towards problem solving, work habits.

The students will know after this transdisciplinary approach implementation:

- to interpret, analyze, formulate, express personal opinions;
- to use information to solve a given problem;
-to identify and solve problems.

It is worth mentioning that the skills, values and attitudes that students need to be successful in the context of personal and social dynamics of contemporary society cannot be formed entirely through traditional academic disciplines.

3. Conclusions

The transdisciplinary integration (prefix *trans* means "beyond", "over") involves an interplay of several disciplines that can generate the emergence of new fields of knowledge. Transdisciplinarity involves the process of studying, exploring complex processes and phenomena, so by coordinating research and collaboration to achieve the establishment of new disciplines. Its goal is the understanding of the present world, having at the basis the unity of knowledge. For example, issues of education for change and development can be solved by a team of professors of philosophy, psychology, sociology, pedagogy, economics, geography, biology, etc., throughout synthesis lessons, seminars, conferences, debates etc. Transdisciplinarity makes the connections between disciplines stronger and helps to discover new horizons of knowledge. Transdisciplinary research is radically different from disciplinary research. Sometimes transdisciplinarity is confused with interdisciplinarity and multidisciplinarity. This is easily explained through their out-of-discipline-limit character.

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