INTERDISCIPLINARITY IN SECONDARY EDUCATION AND PHILOSOPHY TEACHING

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ABSTRACT

Interdisciplinarity in philosophy teaching has gained prominence as an essential pedagogical approach for promoting critical and integral education. Interdisciplinary teaching is one of the possibilities that can provide productivity and is suited to contemporary educational needs. The aim of this article was to conceptualize interdisciplinarity and analyse it within the school context, especially in secondary education. The methodology applied was documentary analysis, with a bibliographic survey of scientific articles, present in the thesis bank of the Coordination for the Improvement of Higher Education Personnel (Capes), in the Scientific Electronic Library Online (SciELO), literature that deals with the theme and in annals of scientific events in education, based on the study by Fazenda (2024); Lück (2013); Ramos; Freitas and Pierson (2013) and the BNCC. Finally, it can be concluded that interdisciplinary work in secondary education and philosophy teaching, when carried out clearly and coherently, effectively provides an integral education for students.

Keywords: High School. Philosophy. Interdisciplinarity.

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INTRODUCTION

Inserting interdisciplinary practice in the school routine is considered one of the challenges for education, at the same time that it contemplates the construction of knowledge by the subject based on its relationship with the context in which it lives.

Interdisciplinarity has been consolidated as one of the fundamental pillars for the construction of pedagogical practices that respond to the challenges of contemporary education. Its essence lies in the articulation between different areas of knowledge, promoting an integrated and contextualized view of reality. In the school context, especially in High School, interdisciplinarity presents itself as a necessary tool to overcome the fragmentation of knowledge, contributing to the formation of critical, reflective students prepared for the challenges of society.

The National Common Curriculum Base (BNCC), a normative document that guides Brazilian education, reinforces the importance of interdisciplinary practices by providing general competencies that deactivate the connection between different disciplines, promoting useful learning. This approach is corroborated by authors such as Fazenda (2024), who defends interdisciplinarity as a movement that transcends disciplinary boundaries in search of integration, and Lück (2013), who highlights its applicability for the integral education of the student. In addition, Ramos; Freitas and Pierson (2013) emphasize the need for dialogue between areas of knowledge for the development of a more contextualized and relevant education.

For Freire (2011), interdisciplinarity contemplates a methodological process of knowledge construction by the subject based on his relationship with the context in which he lives, with his reality and the culture that surrounds him. From this concept, the following research problem arises: How is interdisciplinarity present in the school context and especially in High School? Aiming to conceptualize interdisciplinarity, and analyze it within the school context and especially in High School.

In view of this perspective, this investigation is considered relevant since it aims to contribute to academic discussions about the difficulties and possible alternatives of interdisciplinary work in High School (EM).

METHODOLOGY

In the context of research, the careful choice of methods is an essential resource. Each study requires the definition of an appropriate method, which guides the results and allows a coherent interpretation of the proposed objectives (Chemin, 2020). For this investigation, it was decided to integrate different methods, evolving to their effectiveness.

As for the approach to the problem, the research developed predominantly a qualitative character. The option for qualitative research took into account the aspect of flexibility in analyzing how literary production has been addressing the importance of interdisciplinary work in the school context, especially in high school. In this sense, this research was carried out in an exploratory, descriptive and documentary way because what was intended was to provide greater familiarity with the problem, based on bibliographic surveys, legislation. This exploratory character was given considering that it is a research with less rigidity in planning (Gil, 2008), which is relevant in qualitative research.

CONCEPTUALIZING INTERDISCIPLINARITY

The word interdisciplinarity appears in the mid-60s and appears as a criticism of the fragmentation of disciplines (Thiesen, 2008). Since discipline is nothing more than a way of organizing, of delimiting, academic contents, with the support of a set of didactic and methodological procedures for teaching and evaluation of learning, that is, it is a division of knowledge into different disciplines that are directed in isolated fields of knowledge in a compartmentalized view of the sciences.

Thus, interdisciplinarity emerges as a proposal for interaction between knowledge from different disciplines or areas of knowledge so that people can understand reality and face problems through a globalizing vision.

In Brazil, discussions about interdisciplinarity began to gain space from the 70's onwards, and it can be understood, in the educational field, as an alternative to overcome the fragmentation of teaching, with a view to the integration of learning and knowledge. In the same decade, several scholars presented proposals for meanings of interdisciplinarity, according to levels of interaction, cooperation or coordination between disciplines (Thiesen, 2008).

Interdisciplinarity is not contrary to disciplinarity, it takes place in the disciplinary context, it presupposes the relationship/interaction/dialogue between disciplines, in an uninterrupted relationship between the objects of knowledge. For Brasil (1999) the function of interdisciplinarity:

> It does not dilute the disciplines, on the contrary, it maintains its individuality. But it integrates the disciplines based on the understanding of the multiple causes or factors that intervene in reality and works with all the languages necessary for the constitution of knowledge, communication and negotiation of meanings and systematic recording of results. (Brasil, 1999, p. 89).

For Lück (2013):

> Interdisciplinarity is the process that involves the integration and engagement of educators, in a joint work, of interaction of the disciplines of the school curriculum with each other and with reality, in order to overcome the fragmentation of teaching, aiming at the integral formation of students, so that they can critically exercise citizenship, through a global view of the world and be able to face complex problems, broad and global of the current reality (Lück, 2013, p. 64).

Thus, for interdisciplinarity to occur, it is not a matter of eliminating the disciplines, but of making them communicative with each other. According to Brasil (2018), the curricular reorganization in areas of knowledge aims to facilitate the development of contents, from a perspective of interdisciplinarity and contextualization.

Medrado and Lima (2015) states that:

> The foundation of the interdisciplinary conception is in itself a problem, because it is not a matter of grouping ideas or knowledge, it is not a matter of merging them, it is not a matter of a formula or recipe to be followed, there are no examples, it is not, above all, a matter of grouping the parts so meticulously and scientifically torn apart by the knowledge of modernity through a method. Interdisciplinarity should be thought of primarily as a dialogue of knowledge, as a unique theoretical construction in each of its applications; there is not only one truth, there is no uniform conception of the world, and any attempt to homogenize the being and its ideals would carry with it irrationality (Medrado and Lima, p. 120, 2025).

It is perceived that the interdisciplinary proposal is to establish connections of complementarity, interconnections and passages between knowledge. The curriculum should include learning strategies that enable the student to live in society, productive activity and subjective experiences, aiming at integration. Jean Piaget (1994) attributes other terms correlated to interdisciplinarity:

> a) Multidisciplinarity: The lower level of integration. It occurs when, in order to solve a problem, information and help are sought in various disciplines, without such interaction contributing to modify or enrich them.
> b) Interdisciplinarity: Second level of association between disciplines, in which cooperation between various disciplines provokes real exchanges; that is, there is true reciprocity in exchanges and, consequently, mutual enrichment.
> c) Transdisciplinarity: It is the highest stage of integration. It is the construction of a total system, without solid boundaries between the disciplines (Piaget, 1994, p. 33-34).

Piaget's citation presents a classification that reflects the different levels of interaction between the disciplines in the educational and scientific context, highlighting the increasing complexity in each approach. Multidisciplinarity, located at the most basic level, is characterized by the juxtaposition of disciplines that, although they contribute to the analysis of a problem, remain isolated in terms of content and method, not generating transformations in the areas involved. Interdisciplinarity, in turn, increases the degree of integration by promoting effective exchange between disciplines, resulting in collaborative interactions and mutual enrichment of the areas involved. This model implies active

cooperation that goes beyond the simple sharing of information, generating advances in both knowledge and pedagogical practices. At the apex of this classification, transdisciplinarity proposes a holistic and integrated approach, going beyond the traditional boundaries of disciplines to build a unified knowledge system. At this level, disciplines converge to address complex problems in a systemic way, reflecting a broader understanding of reality.

Thus, Piaget highlights the importance of each level of integration in the advancement of scientific and educational knowledge, with transdisciplinarity being an ideal goal for the construction of more comprehensive and interconnected knowledge, while interdisciplinarity represents a viable and essential practice for contemporary educational contexts.

It can be seen that these conceptualizations show the importance of the association of disciplines, some more or less accentuated. However, it is known that school disciplines have different purposes, objects and modalities of application than scientific disciplines (Lenoir, 2008).

School interdisciplinarity understood as an alternative to overcome the fragmentation of teaching indicates the need for a transformation in the predominant teaching in schools, so it is required from teachers attitudes committed to education and the strengthening of interdisciplinary practices.

Thus, education must be by nature interdisciplinary practice in the sense of integration and articulation of the epistemological universe, in the sense of replacing the fragmented form of knowledge and reality for a search for a unitary conception of the human being and understanding of the world, given its complexity.

Therefore, interdisciplinarity deals with the dissemination of knowledge and ranges from dialogue to the integration or overcoming of limits between disciplines, to the process that must lead from the multiple to the one (Fazenda, 2024). In this sense, for interdisciplinarity to occur, it is necessary to eliminate the barriers between disciplines and also between people, because the interdisciplinary educator who builds knowledge with his students; it goes from being a mere transmitter of information to a mediator of knowledge and a guide in the production of knowledge.

In view of this, the student becomes active in his learning process. In an interdisciplinary classroom, the teacher's authority and student autonomy are conquered and everyone realizes each other and becomes partners. In this sense, interdisciplinarity is a process of living, discovering, uniting and freedom to know (Fazenda, 2002).

Interdisciplinarity is materialized by the educator's attitude towards knowledge, in the opportunity to reorganize knowledge in the global understanding of reality. The interdisciplinary teacher has a special taste for knowing and researching, a differentiated commitment to his students, a boldness to work on new techniques and teaching procedures, analyzing and dosing them conveniently.

The professional who seeks interdisciplinary work fights for a better education, who resists and fights against accommodation and faces various obstacles in his daily life, but does not lose the joy and satisfaction in teaching. He is, therefore, a teacher who is always "dissatisfied" with what he does, always seeking the new in his actions (Fazenda, 2024).

INTERDISCIPLINARY WORK IN HIGH SCHOOL: PERSPECTIVES AND ACTIONS

To better understand interdisciplinary work in EM, figure 1 demonstrates a situation that characterizes the need for a dialogue between disciplines:

Fig.1: Need for interdisciplinary teaching

Source: Fusion of course contents. Available at: https://educascience.wordpress.com/2014/08/26/interdisciplinaridade-futuro-da-educacao/:. Accessed on: 05 Dec. 2024.

The figure shows the issue of the difference between systematized knowledge and the student's needs. One tendency to interpret the process of disciplining with a view to overcoming the fragmentation and compartmentalization of knowledge is to consider that the scientific discipline, the academic discipline and the school discipline have different constitutions and fulfill different social purposes.

Lück (2013) reinforces the failure of the fragmentation of knowledge:

> Fragmentation has broken with the link of simplicity and the growing complexification of reality has been established, making man unprepared to face

> global problems that require from him not only an education oriented to the globalizing vision of reality and a continuous attitude of learning to learn (Lück, 2013, p.14).

It is possible to interpret that, in the traditional model of school that aims at a propaedeutic education, school subjects adopt as a reference the knowledge produced by science, which often seeks the truth in and for itself and, in this self-centered conceptual universe, school knowledge is disconnected from the realities that science itself helps to build.

Denying the student's right to interconnected contents would therefore mean denying him the right to a socially organized life. In the history of education, when improvements in the teaching and learning processes are sought with a view to a better understanding of reality and cultural content, the issue of curricular integration has been posed as a possibility thought from different educational and pedagogical assumptions (Japiassu, 1976).

An interdisciplinary curriculum organizes knowledge and develops the teaching-learning process in such a way that concepts are apprehended as a system of relations of a concrete totality that is intended to be explained/understood (Santos, 2007).

This conception understands that, in school, it is the curricular components that are responsible for allowing the apprehension of knowledge already constructed in its conceptual and historical specificity; that is, as the most particular determinations of phenomena, related to each other.

Thinking about interdisciplinarity in EM, as a prerogative for the production and organization of school knowledge, is the reconstitution of totality through the relationship between concepts originated from different cutouts of reality, that is, from the various fields of science represented in disciplines. It aims to enable the understanding of the meaning of the concepts, reasons and methods by which one can know the real and appropriate it, in its potential, for the human being. In addition to grounding the educational purpose in the elaboration of the curriculum, this principle guides the selection and ordering of teaching contents.

Interdisciplinarity is not something artificial, but a necessity, as Frigotto states; Ciavatta and Ramos (2005):

> Interdisciplinary work presents itself as an imperative necessity for the simple reason that the part that we isolate or extract from the original context of the real in order to be effectively explained, that is, to reveal on the plane of thought and knowledge the determinations that thus constitute it, as a part, has to be made explicit in the integrity of the characteristics and qualities of the totality. It is precisely in the exercise of responding to this need that interdisciplinary work presents itself

> as a crucial problem, both in the production of knowledge and in the educational and teaching processes (Frigotto; Ciavatta; Ramos, 2005, p. 33).

Both interdisciplinarity and contextualization must be based on the epistemological foundation of the relationship between part and totality in the production of science and in the educational process. Interdisciplinarity becomes a strategy for the analysis of social reality by students based on systematized knowledge.

AN INTERDISCIPLINARY CURRICULUM IN HIGH SCHOOL

Fazenda (2024) defines what an interdisciplinary classroom would be:

> In an interdisciplinary classroom, the obligation is alternated by satisfaction; arrogance, by humility; loneliness, through cooperation; specialization, by generality; the homogeneous group, by the heterogeneous one; reproduction, through the production of knowledge. [...] In an interdisciplinary classroom, everyone perceives each other and gradually becomes partners and, in it, interdisciplinarity can be learned and can be taught, which presupposes an act of perceiving oneself interdisciplinary. [...] Another characteristic observed is that the interdisciplinary project sometimes arises from one who has already developed the interdisciplinary attitude and is contaminated by others and by the group. [...] To carry out an interdisciplinary project, there is a need for an initial project that is sufficiently clear, coherent and detailed, so that the people involved in it feel the desire to be part of it (Fazenda, 2024, p. 86-87).

As soon as the need to put interdisciplinarity into practice in the classroom and especially in High School is perceived, Ramos; Freitas and Pierson (2013) show in their chart an action plan for the creation of an interdisciplinary curriculum:

Chart 1: Collective elaboration of the Interdisciplinary Curriculum Proposal

Moment of elaboration	Result of the elaboration
1. Problematize the production process, fact or phenomenon in multiple perspectives: technological, economic, historical, environmental, social, cultural, etc.	Set of questions that serve the selection of contents; that is, the selection of knowledge necessary to solve the problem.
2. To explain fundamental theories and concepts for the understanding of the object(s) studied in the multiple perspectives in which it was problematized.	Integrated selection of teaching contents. Theories and concepts explained here constitute the necessary knowledge to solve the problematization and, thus, structure the selected teaching contents.
3. Locate the theories and concepts explained in the respective fields of science (areas of knowledge, scientific disciplines).	Thus, the epistemological root is identified of this knowledge, so that the curricular components acquire meaning and purpose in the curriculum instead of reproducing the guidelines of textbooks or textbooks.
4. Identify relationships between these theories and concepts and others in the same field (disciplinarity).	Expansion and complementation of the teaching contents selected from the problematization, considering that the real learning of a concept — that is, in a non-pragmatic or only instrumental way — implies apprehending it in relation to other concepts that give epistemological unity to a scientific field.

5. Identify relationships with other concepts from different fields (interdisciplinarity).	Indication of interdisciplinary approaches necessary to explain the problem in its entirety.

Source: Ramos; Freitas and Pierson (2013, p. 37)

It is understood that the assumptions for the construction of the curricular proposal include, in addition to the pedagogical planning itself, also the dimensions of the organization of school work, democratic management, the election of leaders, the autonomy of the school and the participation of the community.

Some facilitating elements must be used for interdisciplinarity to happen in the classroom, one of them is the pedagogical project/proposal, which must have efficient communication; institutional support; a monitoring and evaluation of the project; the existence of a favorable environment for labor relations; and a competence and legitimacy of those who defend the ideas; A theoretical framework that makes it easier to find the main concepts and structure of the project.

Interdisciplinarity, then, is essential, within a school context, so that the dismemberment of the procedures used by it occurs in a satisfactory way. Thus, interdisciplinary work must be planned in advance so that there is not simply a clash between the disciplines that will develop the work together. Therefore, in addition to prior communication between the teachers of the different subjects, the structure of the school must also offer conditions for the proposal to be effectively put into practice.

> When putting into practice an interdisciplinary teaching project, there must be extensive research by the teacher on the different areas with which the chosen productions will relate, in order to anticipate specific situations in which specialized knowledge will be needed.

INTERDISCIPLINARITY AND THE BNCC

The BNCC, by proposing a competency-based training, starts from the principle that knowledge should not be compartmentalized, but rather articulated in order to promote meaningful learning. According to Lück (2013), interdisciplinarity favors the integration between different areas, expanding the understanding of issues about reality in a more comprehensive and complex way. This perspective is essential to meet the ten general competencies of basic education described in the BNCC, such as critical thinking, problem solving, and argumentation.

Interdisciplinarity is also aligned with the proposal of high school training itineraries, which allow students to deepen their studies in areas of greater interest, integrating knowledge and applying it in concrete situations. In this sense, Ramos (2013) states that interdisciplinarity emerges as a strategy to overcome the fragmentation of the curriculum

and foster meaningful learning. Thus, the BNCC stands out for encouraging pedagogical projects and practices that dialogue between different disciplines, breaking with the traditional teaching model.

AREAS OF KNOWLEDGE AND INTERDISCIPLINARITY

Languages and their technologies

The area of Languages and their Technologies is a privileged field for interdisciplinary work, as it covers disciplines such as Portuguese Language and its literatures, Arts, Physical Education and English Language. These disciplines dialogue with each other by addressing topics such as communication, cultural expression, and the development of language skills. According to Antunes (2017), language teaching must go beyond mere grammatical decoding, effectively integrating itself into practices. The BNCC reinforces this integration by proposing the development of skills related to critical reading, textual production and interpretation of different languages.

Applied human and social sciences

Interdisciplinarity is essential in the area of Applied Human and Social Sciences, which includes disciplines such as History, Geography, Philosophy and Sociology. This area seeks to understand social and cultural phenomena in their complexity, requiring an integrated approach. Morin (2018) argues that knowledge must be articulated, connecting the parts to the whole so that we can understand the human condition in its entirety. The BNCC encourages work with cross-cutting themes, such as citizenship, cultural diversity, and human rights, promoting an interdisciplinary look at contemporary issues.

Natural sciences

In the area of Natural Sciences, interdisciplinarity is expressed in the connection between Physics, Chemistry and Biology, in addition to its dialogue with other areas of knowledge. Solving problems related to sustainability, health, and technology requires the integration of specific knowledge from these disciplines. According to Delizoicov and Angotti (2018), scientific literacy presupposes the articulation of different areas to understand natural and social phenomena. This approach allows students to analyze complex situations and propose innovative solutions.

Mathematics and its technologies

Mathematics, often seen as an isolated area, also benefits from interdisciplinarity, especially when applied to real problems in conjunction with other areas. The BNCC emphasizes the importance of skills such as mathematical modeling, data interpretation, and problem solving, which require articulation with Natural Sciences, Languages, and Human Sciences. According to D'Ambrosio (2007), ethnomathematics shows how mathematical knowledge is present in different cultural contexts and can be integrated into other areas in a significant way.

CHALLENGES AND POSSIBILITIES

Despite the potentialities, the implementation of interdisciplinarity faces significant challenges, such as teacher training, resistance to changes in the traditional curriculum, and the lack of integrated pedagogical materials. However, initiatives such as interdisciplinary projects, the use of digital technologies, and the continuing education of teachers can contribute to overcoming these obstacles.

CONCLUSION

It was proven through this study that interdisciplinarity is characterized by instrumentality and that planning time, courage to innovate, enthusiasm, leadership and flexibility are factors that make interdisciplinary practice effective. It also points out the need for projects that dialogue and interrelate the contents, as well as an effective methodology, and educational support.

There is great richness and complexity in interdisciplinary work in EM, which represents an alternative capable of bringing together the disciplines in the same educational project, constituting for those who experience it a transformation of the pedagogical experience.

Interdisciplinarity, as proposed by the BNCC, represents a promising path for the construction of a High School more connected to the demands of the contemporary world. By articulating the areas of knowledge, it enables the formation of students who are more prepared to deal with the complexity of reality. However, it is necessary to face the structural and pedagogical challenges for this approach to become an effective practice in schools. Thus, the relevance of interdisciplinarity as a guiding principle for education in the twenty-first century is reaffirmed.

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