

Knowledge production on Integrated High School: concepts, practices and possibilities of omnilateral formation

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Abstract

This paper discusses the Integrated High School as a teaching modality that seeks to provide an omnilateral training to students. This paper discusses the Integrated High School as a teaching modality that seeks to provide an omnilateral training to students. This is a literature review on the design of Integrated High School, Integrative Pedagogical Practices, and the possibility of omnilateral formation. The survey was carried out in four platforms (Scielo, ScienceDirect, Scopus and *Periódicos Capes*), from 2013 to 2023. After the exclusion criteria, 28 scientific articles were selected. The results show that there is some academic understanding about the conception of Integrated High School, but its practical implementation is still incipient, a fact that points to a research gap on the positioning of educational institutions in the search for overcoming this problem. Regarding integrative pedagogical practices, it was realized that these are not priorities, which strengthens the tradition of disciplinarity and maintains little integration between the work, science, and culture axes. Thus, the omnilateral formation in IHS was presented as a possibility, but on the horizon.

Keywords: Integrated High School. Pedagogical Practices. Omnilateral Formation.

O Ensino Médio Integrado: concepções, práticas e possibilidades de formação omnilateral

Resumo

Este texto discute o Ensino Médio Integrado enquanto modalidade de ensino que busca proporcionar uma formação omnilateral aos estudantes. Trata-se de uma revisão da literatura sobre a concepção do Ensino Médio Integrado, Práticas Pedagógicas integradoras e a possibilidade de Formação Omnilateral. A seleção foi realizada em quatro plataformas (*Scielo*, *ScienceDirect*, *Scopus* e *Periódicos Capes*), compreendendo o período de 2013 a 2023. Após os critérios de exclusão, foram selecionados 28 artigos científicos. Os resultados apontam que há uma compreensão acadêmica sobre a concepção de Ensino Médio Integrado, porém sua implementação prática ainda é incipiente, fato que aponta uma lacuna de

pesquisa sobre o posicionamento de Instituições Educacionais na busca pela superação desse problema. Acerca de práticas pedagógicas integradoras, percebeu-se que essas não são prioridade. O que fortalece a tradição da disciplinaridade e mantém a pouca integração entre os eixos trabalho, ciência e cultura. Destarte, a formação omnilateral no EMI apresentou-se como uma possibilidade, porém no horizonte.

Palavras-chave: Ensino Médio Integrado. Práticas Pedagógicas. Formação Omnilateral.

1 Introduction

Integrated secondary education (IHS) is a type of education that seeks to link secondary education with professional and technological education (PTE). This educational model aims to ensure that students have the right to a broad general education that contributes to the academic and professional fields, thus seeking to integrate theory and practice and prepare students for life in society (Ramos, 2017).

This study discusses the legitimization of every student's right to access comprehensive education through a general, comprehensive and emancipatory education. However, this approach brings with it challenges that need to be discussed in their historical-dialectical aspects, given that education is a field of socio-capitalist interests that have determined, throughout history, the way professional and technological education is offered in the country. After discussing the historical, social-political and philosophical concepts that permeate the PTE model, materialized in the IHS proposal, we will try to understand how pedagogical aspects can contribute to the proposal of omnilateral training for students, making them aware of their role in society. It is worth noting that in this study the terms omnilateral education and integral education are used synonymously.

The methodological procedures adopted for this literature review are qualitative and aimed to map and summarize existing information from the last 10 years on the subject being researched, in a targeted and impartial manner. To this end, a study plan was defined, dividing the subject into three distinct research categories: conceptions, practices and omnilateral education. It should be noted that all the categories were dealt

with in this review and resulted in the materialization of a brief historical review of PTE in Brazil, culminating in its integration into secondary education, which defined IHS. This was followed by reflections on pedagogical practices aimed at the comprehensive training of students, ending with theoretical and reflective discussions on the possibilities of omnilateral training in IHS.

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2 Methodology

The methodological procedures that led to this literature review are qualitative, exploratory in nature and seek to apprehend theoretical knowledge and reveal the production in scientific journals over the last 10 years. To this end, a study plan was defined, dividing the theme into three research categories, namely: category 1 investigated the conceptions and definitions of IHS, category 2 sought reflections on pedagogical practices developed in IHS/PTE and category 3 investigated the possibilities of Omnilateral Training in IHS.

The study plan was based on bibliographic research on four different platforms - Scielo, Science Direct, Scopus and *Periódicos Capes*, according to the categories selected, using the following filters and indications to direct the searches: scientific articles; publication period from 2013 to 2023; open access; peer-reviewed; all types of journals; subjects related to IHS or PTE; review articles; languages: Portuguese, English and Spanish; descriptors used - Conceptions of IHS or IHS, Integrative Pedagogical Practices in IHS or PTE or Integrative Pedagogical Practices, Omnilateral Training in IHS or PTE or Omnilateral Training. This initial search was consolidated in the first results, listed below in Chart 1:

Table 1. Summary of the literature search by category and platform

| PLATAFORMAS | CATEGORY 1 IHS CONCEPTIONS | CATEGORY 2 PEDAGOGICAL PRACTICES | CATEGORY 3 OMNILATERAL TRAINING |
|--------------------|---|---|--|
|--------------------|---|---|--|

| | | | |
|-------------------------|------------|-----------|-----------|
| SCIELO | 4 | 1 | 2 |
| SCIENCES | 21 | 46 | 2 |
| SCOPUS | 73 | 18 | 3 |
| PERIÓDICOS CAPES | 88 | 12 | 21 |
| TOTAL | 186 | 77 | 28 |

Source: elaborated by the authors, 2023.

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Once these initial results were in, procedures were adopted to select, cut out and choose the articles that met the research objectives. The selection began by reading the titles and keywords of each article, prioritizing the selection of those that were closest to the research topic and had a specific relationship with IHS. This criterion ruled out a large part of the selection suggested by the platforms and reduced the overall collection to 78 articles for category 1, 43 for category 2 and 22 for category 3. A second selection filter was applied to these secondary results, prioritizing those that were closest to the research theme and had the potential to reflect on the objectives of the research proposal.

After applying the exclusion criteria of title and keywords far removed from the researched context, contextual deviation from the thematic focus, lack of reflective possibilities with the research objectives and lack of historical-cultural reflections, 28 (twenty-eight) general articles were selected as the theoretical basis for the reflections we proposed. It is worth noting that this general selection of researched articles was supplemented by 6 other articles (Bizerro; Moura, 2023; Castaman; Vieira; Pasqualli, 2019; Minuzzi; Baccin; Coutinho, 2019; Ramos, 2017; Ritter; Duarte, 2019; Santos; Santos, 2020) identified in previous studies that would provide further support for the discussions presented here. We must emphasize that, in most of the articles selected, the themes of IHS conceptions, pedagogical practices and omnilateral education appear interconnected and have an interdependent relationship with each other, as they were discussed in general by the authors.

In view of these facts, this study is divided into three parts: it begins with a brief historical review of PTE in Brazil, culminating in the concept of IHS; this is followed by

reflections on pedagogical practices aimed at the comprehensive training of students; and concludes with theoretical and reflective discussions on the possibilities of omnilateral training in IHS.

3 Results and Discussion

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Understanding omnilateral education presupposes recognizing an education that seeks to integrate different aspects of human life, including intellectual education, the development of technical, theoretical and practical skills, and above all, the understanding of work as an educational principle, because "[...] omnilateralism is the defense of the full development of human capacities and also the appropriation, by the worker, of what is produced by work" (Baczinski, 2016, p. 235).

Seeking omnilateralism implies placing education and pedagogical actions at the center of reflections on integral human formation. Thus, taking materialism-historical-dialectics as a reference, it is possible to gauge that in order to be omnilateral, education needs to encompass the four major formative axes: Productive Work, Intellectual Education, Body Education and Technical Education, given that these axes are interconnected and constitute integral parts of this education that aims to be more complete and emancipatory (Baczinski, 2016).

Thus, the educational triad of omnilateralism consists of intellectual, physical and technological training, in order to provide a broad formation of the human being, promoting the "[...] union between teaching and work, that is, the meeting of theory and practice, intellectual work and manual work" (Chisté; Della Fonte, 2021). In short, omnilateralism seeks human emancipation, in its socio-political-economic and cultural aspects, as it brings subjects closer to current production processes (Gomes; Rodrigues; Vasconcelo, 2022).

Having said that, here are some thoughts that are necessary to understand the IHS proposal, as an educational modality that aims to achieve omnilateralism for students.

3.1 Integrated secondary education: from the beginning to the present day

The origins of the modality conceived as PTE in Brazil date back to the colonial period, with the creation of the first educational institutions aimed at training artisans and manual trades. However, it was from the 20th century onwards that vocational education began to be consolidated as a form of formal education in the country. At the beginning of the 20th century, the first technical schools were set up in Brazil, also known as Artisan Apprentice Schools, which aimed to train skilled workers to meet the demands of growing industrialization (Moura, 2015).

According to the same author, vocational education in Brazil was originally of a welfare nature, aimed only at supporting orphans and the unfortunate, in order to get them into the labor market, thus avoiding social problems. From this perspective, it is possible to infer that vocational education did not have, at its roots, the proposal of integral/omnilateral training of students, which considers the intellectual, emotional, physical, social, and cultural development of students, pointing to a possibility of socio-political-economic and cultural emancipation. In addition, it did not aim for training beyond the job market, since the students in this type of education were working class and needed to be inserted into the world of work from an early age.

Professional education has always been marked by the relationship of interests between the hegemonic and working classes, since the historical educational duality is a product of the division of men into social classes. This gave rise to the school being separated from work, since "[...] the institutionalization of education is, at the same time, the first type of separation between work and education, and is related to the emergence of class society" (Ramos, 2017, p. 30). In this sense, it is notorious that the objectivity of vocational education has its roots in the unilateral training of students, since it only aimed to insert them into the labor market.

In a society divided into classes, where people are categorized into opposing social positions based on relations of production and educational heritage, this division also manifests itself in unequal access to education, leading the lower class to study only

in order to work, within the parameters of the existing mode of production (Carmo; Gonçalves, 2021). Notoriously, this type of social structure can perpetuate inequalities and limit social mobility between different strata of society.

Vieira, Gouveia and Dias (2022) agree that the education system in Brazil, especially secondary education, has always been characterized by a classicist division, offering a general and humanist education to the economic elite, and direct preparation for work to the working class. This division has been maintained over time in order to perpetuate the intergenerational transmission of the country's social and economic status.

In this dual path experienced by vocational education in Brazil, several legal manifestations proposed offering only vocational education to the working class. Among them, Silva and Arantes (2022) state that Law 5.692/71, with its technical and productivist approach, ruled out a comprehensive training approach, while at the same time restricting access to higher education, especially for the working class. In the same direction, the new Education Guidelines and Bases Law (LDB) 9.394/96, surprisingly, contrary to what was expected in academic circles, failed to pave the way for a truly comprehensive education. This culminated in Decree 2.208/1997, which set out a separate and independent curriculum for vocational education in relation to secondary education.

However, some time later, according to Minuzzi, Baccin and Coutinho (2019, p. 253) "IHS became a state policy in the 2000s, [...] as a possible contradiction to the legitimized historical duality between the so-called propaedeutic school and the technical or vocational school". Furthermore, with the creation of the Federal Institutes, through Law No. 11.892/2008, IHS began to be offered, for the most part, by this educational institution which has as one of its pillars "[...] improving the lives of the population living in its surroundings and even promoting an emancipatory and liberating education" (Cavalcanti; Santos, 2022, p. 365).

That said, the first decade of the 21st century saw important achievements for PTE in Brazil, through Decree 5.154/2004, which provided for the integration of

secondary education with vocational education and made it possible to implement IHS, as an educational training proposal that sought to overcome the historical duality of secondary education, divided between preparatory and/or vocational education. Corroborating these achievements, Resolution No. 6 of September 2012 of the National Education Council and Basic Education Chamber (CNE/CEB) defined the national curriculum guidelines for high school technical professional education, thus establishing in the educational scenario the possibility of a transformative education that overcomes the division of social classes at the educational level (Silva; Arantes, 2022).

Moura (2013, p. 707) asserts that "[...] secondary education can be considered the germ of integral, omnilateral or polytechnic human formation", since the objective sought in this type of education, for the construction of a fairer society "[...] is the omnilateral, integral or polytechnic formation of all, in a public and egalitarian way and under the responsibility of the state". The author also adds that omnilateral, integral or polytechnic training has its genesis in Marxist ideas of a more egalitarian and just society, and is also based on the concept of a unitary school defended by Antonio Gramsci - one that provides equal rights to all students. In other words, this training proposal presents the possibility of overcoming the educational dualism that has emerged since colonial Brazil.

However, even in the face of these possibilities for improvement in the provision of education that was closer to the reality of the working class, years later, the publication of Law No. 13,415/2017, presented as a reform proposal for IHS, brings back its technicist/productivist character and suggests maintaining the duality of propaedeutic/professionalizing education (Silva; Arantes, 2022). For Ramos (2017), Law No. 13,415/2017 was an attack on previous achievements and hurt the purpose of secular public education with social quality.

Mota and Frigotto (2017) present three aspects of regression brought about by this proposed new reform. They state that, with it, we return to the Capanema Reform, which took place during the Vargas dictatorship. At that time, secondary industrial, commercial and agricultural education did not offer adequate equivalence for entry into

higher education. Also, the reform goes back to Law 5.692/1971, which represented the educational reform during the military dictatorship, bringing with it precarious professionalization in relation to the real needs of the different states. For the authors, it wasn't really a question of "free choice", as the reform's advocates claimed, but of compulsory choice, as there was only one way to fulfill the compulsory workload in this teaching proposal. In addition, the approach of the new reform takes up Decree 2.208/1996, which had already deepened the structural division between professional education and basic education, in a more problematic way.

Similarly, Oliveira (2023, p. 3) states that "The regression in secondary education is expressed fundamentally by its new curricular organization, in which the withdrawal of some subjects has taken on greater expression, in addition to the subordination of students' training to the logic of the pedagogy of competencies". The author adds that this reform had a direct impact on secondary education by remodeling its curricular structure. This resulted in a disconnection between vocational training and general education, as well as allowing greater "flexibility" in hiring teachers, without requiring them to have attended undergraduate courses in order to teach the technical vocational training curriculum. In short, this reform created a restriction on what could be considered a comprehensive training project for young workers.

According to these mobilized authors, the IHS has faced and still faces, in the historical-political-educational context, various challenges that hinder its practical implementation as a teaching proposal that aims to provide students with an integral education. This is because education is under the aegis of capitalist interests. Among these challenges, we can cite the need for better infrastructure and financial resources for the institutions that offer this form of education; better teacher qualification to work in this pedagogical proposal of an emancipatory nature; greater curricular articulation that guarantees the integration of work, science, culture and technology; and public policies that guarantee access and permanence for each and every student (Araújo; Frigotto, 2015).

Converging with the authors in this discussion, Ciavatta (2014, p. 190) states that there were many challenges faced in implementing integrated training in Brazil, because "[...] over three decades, many were the defeats suffered in the face of the social, economic and educational policies of neoliberalism in the 1990s and 2000s".

According to Bizerro and Moura (2023), IHS has always been a field of antagonistic disputes, where capital presents a hegemonic project and society questions, in a counter-hegemonic struggle, its right to a comprehensive education that combines general and specific knowledge, so as to include both basic and professional education. Therefore, "The IHS within the counter-hegemonic project presents itself as an alternative for breaking the educational duality between propaedeutic and professional education [...]" (Bizerro; Moura, 2023, n.p.).

It is in this contradictory scenario of political and social constructions and deconstructions, class struggles and socio-educational confrontations that the current IHS survives, defined by Silva and Ramos (2018, p. 569) as "[...] one of the modalities of articulation between technical professional education and high school, whose meaning lies in the ethical and political commitment to ensure students, in a single curriculum, the right to professional training, without this replacing general training [...]".

Having said that, in order to reflect further on the conceptions of IHS, it is interesting to look at the meaning of the term "integration" in this teaching modality, a discussion that will be presented in the next section.

3.1.1. The meaning of integration in Integrated High School

The IHS seeks to link basic education with vocational training, based on three fundamental concepts: the first refers to the inseparability between basic and vocational education - this concept highlights the importance of not separating general education knowledge from that of the vocational field (Moraes, 2021). The second concept refers to integral human formation - this means an education that encompasses ethical aspects, the exercise of citizenship, the construction of values, critical and reflective capacity, respect for diversity and the formation of autonomous subjects who are aware of their

rights and duties in society. The third concept refers to the integration of general and specific knowledge from the perspective of totality - this concept highlights the importance of understanding that the different fields of knowledge are not isolated, but interconnected and related to each other. Therefore, integrated training presupposes that the student is able to establish connections and articulations between the general and specific knowledge acquired, applying it in a contextualized and critical way to understand and solve problems in social reality (Moraes, 2021).

In this way, IHS seeks to provide a broader and more meaningful education, preparing students for an academic, professional, cultural and civic life, promoting a more integrated and contextualized view of knowledge, going beyond the formal aspect of integration between educational purposes (Silva; Ramos, 2018). Moraes (2021) also adds some aspects to the term integration: the philosophical aspect means that the philosophical basis resides in the understanding of the human being and society as historical-social processes, enabling the individual to understand, question and transform these processes; the political aspect lies in the inseparable connection between professional education and basic education; in the epistemological aspect, knowledge must be taught not only in its original scientific fields, but also as part of a system of relationships that reflect the totality of society; and finally, the pedagogical sense that concerns the way content is selected, organized and taught.

These same aspects were discussed by Ramos (2017), who states that the concept of IHS includes an educational approach that goes beyond preparing students for academic performance or the job market. Instead, this type of education seeks to provide a full human education, incorporating the three fundamental dimensions of life: work, science and culture.

Based on these reflections, it became possible to infer that the term "integrate" in the context of IHS, presupposes the sense of making whole what for the moment was fragmented, in other words, integrating takes on the sense of completeness, of wholeness. Thus, it was plausible to project the concept of IHS, stating that it is a proposal for comprehensive education for all students, regardless of their social class.

This concept is based on overcoming the dichotomy between general education and vocational education, recognizing that both are complementary and articulated, since general education contributes to the development of students' intellectual, ethical and social capacities, while vocational education provides them with specific knowledge and skills for exercising a profession (Ramos, 2017; Silva; Ramos, 2018; Moraes, 2021; Oliveira, 2023).

In this reflective context, of the conception of the IHS educational proposal and the meanings assumed by the term integration, the developments that we initially set out to reflect on were presented, such as the implementation of pedagogical practices that provide the possibility of omnilateral training for students in this type of education.

3.2 Pedagogical practices for an omnilateral project

The IHS, as a proposal for education that articulates doing and thinking, guided by a societal project of integral or omnilateral education, requires the development of integrative pedagogical practices (IPP) that can contribute to the formation of autonomous and socially emancipated subjects. Therefore, understanding what IPPs are becomes relevant to these intended reflections. Paula, Sá and Andrade (2017, p. 144) define integrative practices as "educational actions that mobilize the integration of subjects, knowledge and institutions". In this context, an IPP can be considered to be any activity aimed at integration, be it between the theory and practice of content, between general and specific knowledge, between education, work, science and culture, or even between the subjects that make up the IHS Curriculum Base (common base and technical base).

Based on the reflections of Franco (2016) and Pena (2016), we can define the term "Pedagogical Practices" as strategies and methods used by educators to conduct the teaching and learning process for students. These practices encompass all the actions and approaches employed in the classroom or in other educational contexts, including a series of techniques, resources and activities that actively involve students in

the proposed activities, promoting their participation, reflection and, thus, the construction of knowledge.

With this in mind, we will discuss the practical aspects of using PPI in the teaching-learning environment at IHS. First of all, it is necessary to clarify that there is no model to be adopted for the implementation of PPI, because pedagogical practices are alive, objective and intentional, so they need to be in line with the educational environment and the intended audience. In the words of Franco (2016, p. 536) "[...] a pedagogical practice is configured as a conscious and participatory action that emerges from the multidimensionality that surrounds the educational act". In turn, these practices are adopted by teachers to organize, enhance and interpret the intentions of the pedagogical project of educational institutions.

According to Minuzzi, Baccin and Coutinho (2019), for the IPPs to be effective, teachers need to work together, thinking and articulating their praxis according to the principle of the inseparability of theory and practice. However, in addition to integrating theory and practice, the IPPs need to be contextualized with the reality experienced by the students. In this way, it can be inferred that the implementation of IPPs requires teacher positioning, attitude, willingness to plan and face the new, openness to group work and, above all, knowledge and awareness of the proposal for omnilateral training, intended by PTE within the scope of IHS (Silveira; Martins, 2019).

In the reflective perception of the authors discussed, there are several possibilities for implementing IPPs that can contribute to the process of comprehensive education for students in IHS, with emphasis on those that focus on intentionality, interdisciplinarity, curriculum integration, contextualization with the students' reality, and the relationship between theory and practice. In contrast to the possible benefits obtained from the implementation of IPP in the context of IHS, some challenges arise for this implementation, ranging from the initial and continuing training of teachers to work in an integrated manner, in line with the proposal envisaged for IHS, to the organization of integrative curricula that presuppose the principle of contextualization, interdisciplinarity

and commitment to social transformation (Paula; Sá; Andrade, 2017; Carmo; Gonçalves, 2021).

In addition to these challenges, Pena (2016) adds that there are no demands or requirements in Brazilian legislation for teaching in PTE. In practice, the majority of professionals who work in technical vocational training do not have a teaching background and seek teaching as an alternative to their original profession. This makes it difficult to integrate the different areas of knowledge (Castaman; Vieira; Pasqualli, 2019).

Since IHS is a pedagogical concept that seeks to provide students with an integral education by interweaving the fundamentals of work, science, culture and technology, it is necessary for knowledge to be organized in such a way that it complements each other (Castro; Duarte Neto, 2021). In addition, knowledge needs to be understood in its entirety and point towards the systematization of a pedagogical proposal aimed at omnilateralism. However, although the IPPs translate curricular integration into different theoretical aspects, it is the integrated curriculum that underpins the implementation of all pedagogical proposals and is the one that points out the path to be followed in this quest for integral and omnilateral training (Silveira; Martins, 2019).

3.3 Towards an omnilateral education: constructs of Integrated High School

The term "omnilateral" has its roots in Marxist ideas and first appears in Marx's works, linked to human formation, in the "Economic-Philosophical Manuscripts" of 1844. It refers to the idea of forming a complete man in his physical, intellectual and technological capacities, presupposing for this type of training the union between teaching and work, theory and practice and intellectual and manual work, in order to overcome the historical duality of unilateral training in fragmented and limiting knowledge to act in a single sphere of productive life (Chisté; Fonte, 2021).

In this conception, omnilateral training means recognizing work as a fundamental element of social being, as it constitutes a creative unit of social human life, configured

as the duty and right of all. In the meantime, preparation for the world of work becomes an elementary part of an integral education, but it cannot be its main objective (Ritter; Duarte, 2019).

However, since work is a fundamental element for life in society and it is through work that we seek a fairer and more equal society, it is necessary to understand that "To conceive of the inseparability between work, science and culture is to understand work as an educational principle" (Cavalcanti; Santos, 2022, p. 357). In this way, work will always be linked to an omnilateral education project.

In order to clarify the meaning assumed by the category of work, we turn to the considerations of Ramos (2023, p. 5), for a more assertive definition of work as an educational principle, assumed in IHS, namely: the educational principle of work in IHS presupposes that the historical process of humanity and the contradictions we are currently experiencing, in terms of material and cultural production, are aspects that should make up the education of new generations.

In this context, we would add that, according to Baczinski and Comar (2019), the Marxist definition of omnilateral education brings with it the concept of work as an educational principle, which appears linked to three other formative axes, which together make up the process of integral education discussed here: intellectual education, physical (bodily) education and technological education. In this context of defining the axes that are interconnected and direct omnilateral education, Castro and Duarte Neto (2021) include that omnilateral education is an approach to education that is developed considering the objective and subjective conditions necessary for the student's historical development. This includes intellectual, political, cultural, affective, psychosocial, aesthetic and playful education, thus encompassing all human aspects that can be shaped and enriched through social interaction.

Associated with the idea of integral or omnilateral training, the term polytechnics is sometimes used, which etymologically means "many techniques". However, Moura *et al.* (2015) state that in Karl Marx's writings, there is a suggestion that polytechnic education is associated with the idea of a fully developed man, since it would be through

this type of education that the intellectual, physical and technological training that underpins the concept of omnilateral education would take place at the same time.

Given this reflexive context of omnilateral education, Castro and Duarte Neto (2021, p. 5) state that "Polytechnic education is not understood in the sense of teaching many techniques, but in mastering the historical, scientific and technological foundations, giving students the possibility of choosing their path". In the same vein, Ramos (2023) asserts that polytechnic education consists of assimilating the knowledge historically built up by humanity, making students capable of understanding production processes and seeing them as an integral part of society as a whole. Thus, the concept of polytechnic education is closely linked to omnilateral education and aligns with the vision of a unified school that seeks to overcome educational division by eliminating separate fields of education for different social classes. In this study, omnilateralism, comprehensive education and polytechnics represent the same sense of integration intended by transformative education, which seeks to strengthen the relationship between work, science and culture, with work as the educational principle.

Having gone through the history of Vocational Education in Brazil, it was possible to see that the objective of this educational modality has always been linked to training labor for the job market, especially in those activities that involved physical effort. Therefore, this objective led to a utilitarian view of vocational education, where training was mainly aimed at meeting the shortcomings of the productive sector, according to the needs of each historical period (Vieira; Vieira, 2019). However, it should be noted that general research into PTE and IHS shows that this restrictive conception of vocational education has been questioned and discussed by scholars such as Maria Ciavatta, Marise Ramos, Gaudêncio Frigotto and Dermeval Saviani, among others.

In addition, within the scope of the IHS discussions, a proposal is put forward for education that promotes citizenship, social inclusion and equal opportunities, since the aim of this final stage of basic education is to train students for life in society, thus contributing to the country's social, cultural and economic development. In this way, we

seek to offer a transformative education capable of emancipating students, making them free to choose their future (Silva, 2021).

Reflecting on the Marxist perspective defended by Gomes, Rodrigues and Vasconcelo (2022), work should not only be seen as a form of subsistence or a means of producing goods, but also as a source of self-realization and emancipation. However, under the capitalist system, work becomes alienated: workers are separated from the product of their own labor, from working conditions and from control over the production process, which leads to a loss of autonomy and the meaning of work, resulting in the alienation of subjects from themselves and from society.

As a result, the proposal for transformative education discussed here lies in the possibility of overcoming alienation at work. This can only be achieved through a transformation in society that sees work as a free and conscious expression of the human capacity to create and produce. Thus, work as an educational principle, from the perspective of omnilateral education, implies that productive activity should not be alienating, but should ensure the full development of human capacities and the construction of egalitarian, fairer and more emancipatory social relations (Santos; Santos, 2020).

In this way, an educational proposal that seeks omnilateral education needs to be linked to a project of social transformation, preparing students for life in a society where "[...] science and work coexist in full harmony and belong to all individuals, thus characterizing a break with the way education and work are conceived in this capitalist society, putting an end to the division, fragmentation of work and education" (Santos; Santos, 2020, p. 71).

Lima and Colares (2023) discuss the importance of comprehensive education in a context of changes in capitalist society, emphasizing the need for an education that fully develops potential, promotes social justice and meets the principles of human rights. It is worth remembering that in the context of the Brazilian state, the implementation of omnilateral human education faces challenges, as capitalism, in its quest to maximize gains and maintain power relations, prioritizes training and education for the ruling class,

adjusting to the needs of the economic system, rather than a more holistic and humane approach (Franklin, *et al.*, 2021).

As a repercussion of this study, it is possible to infer that there are possibilities for omnilateralism in IHS, albeit on the horizon, because this proposal for emancipatory education brings with it the supposed overcoming of the historical separation between preparatory education and vocational education. However, in order for this to materialize, it is necessary to call for schools that are committed to this type of educational ideology.

4 Conclusions

Reflecting on IHS as a type of education capable of providing students with an omnilateral education was a challenging task, which required understanding the entire historical context of PTE in Brazil, given that socio-political and economic factors have a major influence on the educational field. However, the analysis of the selected articles showed that, in general, this subject has been the object of study and reflection by many researchers, which has provided us with a significantly substantial body of theory. Thus, we can say that in each category selected for this research, it was possible to grasp important concepts and critical-reflective discussions for the proposed analysis.

The first category analyzed, defined as "Conceptions of IHS", pointed out that in the academic world there is a definition for this type of teaching, linked to the idea of an educational modality that aims to offer comprehensive training for students. This occurs through the interweaving of the axes of education, work, science and culture, based on the principles and perspectives of overcoming the dichotomy between general and vocational training, in order to contribute to the emancipation of students.

However, within the analyses of the various authors, a gap was identified that deserves to be discussed from the perspective of historical-dialectical materialism. This gap refers to the root causes of the incipient knowledge presented about the political-pedagogical objective of PTE. This opens up an opportunity to investigate the following questions: How can teachers be involved in this political and social struggle, waged within

the IHS, to overcome the dichotomy between preparatory education and professional education? What can be done by the Educational Institution so that all teachers working in the IHS/PTE modality have political-pedagogical knowledge about the objectives envisioned in this teaching modality? Does teaching in IHS/PTE require a socio-political and scientific-cultural knowledge/commitment that differs from other types of education?

It is hoped that, based on the research presented here, other researchers will be able to pay attention to these questions and produce scientific knowledge that contributes to improving the quality of teaching offered in PTE integrated with secondary education.

The analysis of the articles that made up the second category, called "Pedagogical Practices for PTE/IHS", proved to be somewhat significant, considering that these texts addressed different discussions on the subject and in different courses and contexts linked to PTE. This analysis indicates a clear understanding of the term PPI as any activity aimed at integration and recognition of its importance in the educational context discussed.

The analyzed authors present discussions that favor the use of pedagogical practices that place the student at the center of the teaching-learning process, using techniques and procedures that lead the student to construct meaningful learning by combining theory and practice. In this context, the importance of using pedagogical practices that are guided by intentionality, interdisciplinarity, curriculum integration, research-based teaching, contextualization with the students' reality, and that maintain the relationship between theory and practice was highlighted. However, when the authors' final considerations were analyzed, it was clear that, although they pointed out possible causes that justify some teachers not working with IPP and/or practices that are more appropriate for this form of teaching, there was no evidence of actions proposed by educational institutions that show concern for solving the problem. Therefore, this is also inherent in the field of research, because, just as teachers need to be committed to the emancipatory education project envisioned in IHS/PTE, educational institutions also need to rethink their theoretical and practical performance in order to combat the traditional disciplinarity still installed within integrated courses.

In the third category, "Possibility of Omnilateral Education in IHS", possibilities were presented for an comprehensive education in this modality, although this possibility always appears to depend on other elements that surround PTE and become challenging elements to be overcome so that comprehensive education can take off and achieve its objectives. Finally, "[...] PTE, from the perspective of omnilateral education, faces a series of material, structural, normative, political and didactic-pedagogical obstacles" (Sousa; Maciel, 2023, p. 4). However, the authors analyzed assume that there is a possibility of omnilateral education in IHS, although this is still on the horizon.

Despite this, the authors assert that the path taken by the IHS is opportune and relevant if we are to achieve, in the near future, the true and effective polytechnic education, emancipating and transforming society, that we are aiming for. It is in this context of overcoming the challenges that prevent the materialization of omnilateral education in IHS, and driven by dialectics, that we believe the growth of scientific research on this subject can make a significant contribution so that education ceases to be an object of capitalist interest and begins to perform its political function of forming citizens who are aware of their rights and duties in society. In this way, these citizens will be able to contribute to productive work in society and enjoy its benefits.

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