

# Polytechnic and integrated training: conceptual clashes, political projects and historical contradictions of Brazilian education<sup>1\*</sup>

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## ABSTRACT

The article discusses the problems with students development, in high school – the final stage of basic education in Brazil. This is on the assumption that the objective to be achieved, from the perspective of a just society is the onilateral, integral or polytechnic development. And, this is the question: is it possible to walk in this direction in a peripheral capitalist society like Brazil? This is a literature search that appealed to classic authors in the field of sociology and education in order to conceptually discuss the stated terms, notably “polytechnic” and “integral human development”. Therefore, we discuss the integrated school as a bridge in the intended direction. The findings indicate that in spite of the difficulties and conflicts within Brazilian education its progress reiterates the defense of emancipatory educational processes among which stands out integrated education.

## KEYWORDS

high school; integral human development; polytechnic; integrated high school.

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## ***POLITECNIA E FORMAÇÃO INTEGRADA: CONFRONTOS CONCEITUAIS, PROJETOS POLÍTICOS E CONTRADIÇÕES HISTÓRICAS DA EDUCAÇÃO BRASILEIRA***

### **RESUMO**

Neste artigo se discute a problemática da formação humana no contexto do ensino médio, etapa final da educação básica brasileira. Parte-se do pressuposto de que o objetivo a ser alcançado, na perspectiva de uma sociedade justa, é a formação onilateral, integral ou politécnica. A problemática se estabelece em torno da questão: é possível caminhar nessa direção em uma sociedade capitalista e periférica como a do Brasil? Trata-se de pesquisa bibliográfica que recorreu a pensadores clássicos do campo da sociologia e da educação com vistas a discutir conceitualmente os termos enunciados, notadamente “politecnia” e “formação humana integral”. A partir disso, se analisa-se a possibilidade do ensino médio integrado como travessia na direção pretendida. As conclusões sinalizam que, em que pesem as dificuldades e os embates que marcam a trajetória educacional brasileira, cumpre reiterar a defesa de processos formativos emancipatórios, entre os quais se destaca a formação integral e integrada.

### **PALAVRAS-CHAVE**

ensino médio; formação humana integral; politecnia; ensino médio integrado.

## ***FORMACIÓN POLITÉCNICA Y FORMACIÓN INTEGRADA: ENFRENTAMIENTOS CONCEPTUALES, PROYECTOS POLÍTICOS Y LAS CONTRADICCIONES HISTÓRICAS DE LA EDUCACIÓN BRASILEÑA***

### **RESUMEN**

Se analiza la formación humana, especialmente en la escuela secundaria que es la parte final de la educación básica en Brasil. Se asume el supuesto de que el objetivo a alcanzar, en la perspectiva de una sociedad justa es la formación onilateral, integral o politécnica. Se pregunta: ¿es posible caminar en esa dirección en una sociedad capitalista periférica como Brasil? Es una investigación que hizo un llamamiento a los autores clásicos en el campo de la sociología y educación con el fin de discutir los términos establecidos, en particular el “politécnico” y “desarrollo humano integral”. Ante este estudio, se discute la integración entre la escuela secundaria y la enseñanza técnica, como una posibilidad de travesía hacia la formación onilateral. Los resultados indican que, a pesar de las dificultades y conflictos que hacen la trayectoria educativa brasileña cumple reiterar la defensa de los procesos educativos emancipadores entre las que destaca la formación integral e integrada.

### **PALABRAS CLAVE**

enseñanza secundaria; formación humana integral; politecnia; enseñanza secundaria integrada.

## WORK, HUMAN EDUCATION AND SCHOOLING UNDER THE AEGIS OF CAPITAL: SOME APPROACHES

In this text, we reflect about human education in Brazilian society, mainly on that phase of schooling that corresponds to the end of basic education: high school. The issue is complex because the problem of human education is not limited to the educational system.

It is the vital need to produce one's very existence through work that determines the need for human beings to master the knowledge and the social practices required for this production; that is, they must be educated, not necessarily in institutions specifically intended for that purpose. This is why schools were presented as "initially 'inessential,' a luxury and not a primary need" (Manacorda, 2007, p. 23).

Education is the product of social and productive relations and the school, an institutionalized space where part of the educational process takes place, is the fruit of these relations. Thus, schools were not, initially essential, but a luxury because they were designed to serve the interests of a particular class, the ruling class. By having this class bias in its genesis and not being conceived for all of society, schools tended to become isolated from society, while also reflecting its contradictions.

In the current phase of development of the productive forces, anchored in science and technology, schools have become "essential" to human sociability. Precisely for this reason, their class character becomes accentuated. This is because "the need for capital valorization, based on the private ownership of the means of production" (Kuenzer, 2010, p. 861) requires a division "between intellectual and manual labor as a strategy for subordination, considering the valorization of capital" (*idem, ibidem*).

As a result, the social and technical division of labor is a fundamental strategy of the capitalist mode of production, whose metabolism requires a class-based educational system and, in this way, separates intellectual and manual labor, simple and complex work, general culture and technical culture. That is, capitalism requires schools that educate unilateral human beings, mutilated laborers, from both the ruling and subaltern classes. This, however, does not occur in a mechanical way, but through a dialectical relationship of the forces that are in dispute, and in some way impede a bit of capital greed.

How, then, is it possible to consider schools that can serve the interests of the working class and, are therefore focused on integral, omnilateral human development, according to the Marxian (and Marxist) tradition? Is this possible in a capitalist society? What are the limits? Is it possible to think of this as part of the strategy for struggle in favor of workers towards another society? In search of clues that might help formulate possible answers to these questions, we turn to authors such as Karl Marx, Friedrich Engels, Antonio Gramsci, Mário Manacorda, Lucília Machado, Gaudêncio Frigotto, Acácia Kuenzer, Paolo Nosella, Dermeval Saviani, José Claudinei Lombardi and others, having as reference the concept of polytechnic education and the disputes that surround it.

Thus, in the first section we address the conceptual clashes that historically constructed the idea of polytechnic education. The second presents the controversy

derived from the conceptual clashes around professional education at the high school level. Finally, based on the real movement of society, on contradiction, and on the perspective of social totality, we highlight the projects in dispute that, in part, point in the direction of integral human education and in part deny it in favor of hegemonic interests.

## POLYTECHNIC EDUCATION: CONCEPTUAL CONFRONTATIONS

We are interested in clarifying some central elements in the work of Marx, and Marx and Engels concerning education. One of them is the fact that they did not approach the subject of education, teaching or professional training in isolation. On the contrary, all their reflections are inserted in the discussion about how men and women, young people and children, especially from the working class, produce their life in the midst of social and production relations under capitalism.

Due to the impossibility of “understanding the educational problem in and of itself” (Lombardi, 2010, p. 319) because of its overlapping with the way human beings produce their very existence, Marx and Engels “wound up formulating the necessary union of education with material work” (*idem, ibidem*), the driving force of their formulations in the field of education.

Marx, in the *Instructions for the Delegates of the Provisional Central Council of the International Workers' Association*, of August 1866, when discussing the abominable way in which child and youth labor was carried out in capitalist factories, advocated the need to impose limits on this kind of work and defended the union between education and productive work from another perspective. In this work, Marx (1982a, s.p., italics in the original) asserts that the education of the working class must include:

First: *Mental Education* [intellectual].

Second: *Physical education*, such as that taught in gymnastic academies and military academies.

Third: *Technological training*, which transmits the general principles of all production processes and, simultaneously, introduces the child and young boy to the practical use and handling of elementary instruments of all trades.

In its essence, this proposal concurs with the discussion about education by Marx in *Capital*, whose Volume I was published in 1867, as well as *The German Ideology* of 1846 and the *Critique of the Gotha Program* of 1875. It is also present in the *Communist Manifesto* of 1848, by Marx and Engels.

When dealing with intellectual, physical and technological education, Marx is clearly pointing to the integral education of the human being, that is to say, an omnilateral education. This concept was incorporated to Marxian tradition under the name of polytechnic education, due to the references he made about the term, as well as those of a great number of scholars of his work.

In the formulation transcribed above, Marx does not discuss in detail the meaning of the elements that constitute his concept of education, mainly in relation to intellectual education. Therefore, it is necessary to search the whole of his work and in those of Marxian scholars to grasp his understanding of the subject.

In the continuation of the text transcribed above, Marx indicated something of his understanding of the subject when he affirms that "the combination of paid productive work, mental (intellectual) education, physical exercise and polytechnic instruction, would raise the working class quite above the level of the high and middle classes" (*idem, ibidem*). From this it can be inferred that, for him, *polytechnicalism* or polytechnic education is part of an integral education, however, it is not synonymous with it. On the other hand, in Chapter XIII of *Capital* he declares that as modern industry develops it, needs to "substitute the individual-fragment, the mere bearer of a social function detail, for the fully developed individual, for whom different social functions are alternate modes of activity" (Marx, 1996, p. 114). He also affirms that "a spontaneously developed element, based on modern industry, of this revolutionizing process are the polytechnic and agronomic schools". This thus suggests that Marx associates polytechnic education to the idea of a fully, integrally developed individual. Machado (1989, p. 129) corroborates that idea by pointing out that: "the mastery of techniques is not sufficient; it is necessary to dominate them at an intellectual level". She continues:

To understand the functioning of technological resources Marx recommends always beginning from simplifications, reducing the complicated mechanisms to their basic principles, favoring the transmission of general principles and scientific concepts used more often. In these indications, Marx's concern is present for the definition of the character of polytechnic education, in the sense of conferring to it a level of reflection and abstraction needed to understand technology, not only in its immediate application, but also *in its intellectual dimension* (*idem, ibidem*, emphasis ours).

Therefore, it is through intellectual, physical and technological development that polytechnic education takes place, which suggests that the polytechnic concept can encompass the idea of integral human education. Education of the body, meanwhile, should compensate for the harmful effects of work on health that, particularly in machine operations, "attacks the nervous system to the maximum, represses the multipurpose set of muscles and confiscates all the free activity of the body and spirit" (Marx, 1996, p. 53). Note the inseparable character between education of the body, and intellectual and technological education that Marx confers to a superior quality education.

Intellectual education must cover all the sciences, because only with the knowledge of the fields of scientific and technological knowledge, which explain and provide a foundation for productive work, can the working class place itself "well above the level of the upper and middle classes".

Marx defends integral human education for all children and youth of both genders. Although he was certain that this would only be possible in a future society,

with the overcoming of bourgeois hegemony. This is why he asserts: "However, at present, we only have to deal with children and youth of both genders [those of the working people]" (Marx, 1982a, s.p.).

For Manacorda, when dealing with the intellectual dimension of human education, Marx also includes history, language and literature and the arts as he explains when referring to the term "intellectual education" present in his text *Instructions for Delegates*:

What can this be but exactly all that which is not immediately useful, instrumental, operative, that is, the opening to that world of literature, the arts, history, of thought that Marx, in turn, knew so well how to appreciate? Perhaps the key to understanding Marx's thinking well is precisely here, in the fact that unites with austere rigor, the organization of the school, the social need to reproduce life, to regulate the organic interchange with nature, where human freedom is made explicit only as a rational regulation of that interchange [...] (Manacorda, 2007, p. 108).

In this way, the intellectual dimension covers, in addition to the natural sciences and mathematics, the human and social sciences, philosophy, language and literature and the arts, in short, culture, since for Marx, in his time;

the school structure continues to be essentially aimed at learning what man requires in the 'realm of necessity'; the rest is what puts him in the 'realm of freedom', far from denying it, it prepares him, first and foremost, for daily life, for the spiritual interchange with adults (*idem, ibidem*).

Continuing the search for the genesis of the concept of integral human development from the concept of polytechnic education, it is necessary to understand that, contradictorily, for Marx and Engels, it would originate from the very transformation of industry, which constantly revolutionizes the technical basis of production and with it the division of labor, intensifying it. Modern industry, with its constant *complexification* of machinery, tends to demand another laborer, with greater versatility (Marx, 1996).

This is explained by Marx (*idem*, p. 116) when he states that "the development of the contradictions in a historical form of production is, however, the only historical route to its dissolution and the organization of a new one". Hence we can deduce the link between the genesis of the conception of polytechnic education and industrialization.

However, in this defense, Marx is not concerned with increasing the productivity of capital. To the contrary, his political goal is for workers to return to have power over the content of their own labor and thus, have better conditions to face the contradiction between capital and labor, in order to overcome the capitalist mode of production, by deepening its internal contradictions.

In short, it is the division of labor, and particularly its exacerbation, which engenders the contradictions that make it possible to overcome them and, as a con-

sequence, that of the duality between intellectual labor and manual labor, technical culture and general culture, professional education and general education.

To synthesize what has been presented regarding the Marxian concept of human education, we turn to Lombardi (2010), who, based on Marx and Engels, summarizes this conception in three broad directions: criticism of bourgeois education, teaching and professional qualification; the relationship of the proletariat with science, culture and education; and communist education and the integral education of mankind.

Regarding this last aspect, the author highlights that "polytechnicalism" articulates doing and thinking, overcoming "mono-technalism". Therefore, for Lombardi:

Marx and Engels' concept of education began with the critique of bourgeois society, the proclamation of the need to overcome this society and as its point of arrival the constitution of the realm of liberty. With the instauration of communism, education will be at the service of man and, rearticulating manual labor and intellectual activity, should be fully dedicated to the integral development of mankind (*idem*, p. 329).

Having made this summary of the Marxian conception of education, taking as the main references his thought and that of Engels, we will now discuss the contributions of Antonio Gramsci.

To begin we highlight that while Marx and Engels lived in the nineteenth century and their most important studies concern the English reality during the peak of the first industrial revolution, Gramsci lived in the twentieth century, and Italian society was his fundamental field of study. For this reason the material bases of their analyses were different. Therefore, Gramsci turned to Marx's thought, but did not always point to the same solutions as Marx proposed.

Work, in its ontological and historical dimensions, is recognized by Gramsci as the fundamental educational principle. In the text "Americanismo e Fordismo" (2000b) [*Americanism and Fordism* (2000b)] he affirms that the most developed form of work in its extreme rationalization implies a sacrifice of the body and spirituality of workers. But even so, it is unable to abstract from men their intellectual activity:

[...] you cannot separate the *homo faber* from the *homo sapiens*. In short, every man out of his profession, undertakes some kind of intellectual activity, that is, is a *philosopher*, an artist, a man of taste, participates in a conception of the world, has a conscious line of moral conduct, this contributes to maintaining or modifying a conception of the world, that is, to generating new ways of thinking [...] (Gramsci, 2000a, p. 53).

When considering the organic relation between work and education, Gramsci located it as a process through which man achieves humanization, a process substantiated by history and by the modes of production of existence. In this process, the integration between work, science and culture would compose the

educational principle of the unitary school, different from the traditional school, it is a "unbiased", essentially humanistic school.

The formulations of Marx, Engels and Gramsci were present in the research field that analyzes the relations between work and education and they constituted themselves as conceptual, epistemological and methodological references. A certain convergence of positions can be observed in this field concerning the perspective of an education that considers work as an educational principle. However, the same does not occur regarding the use of the term polytechnic, revealing conceptual confrontations. Without the intention of establishing a "state of the art", about this issue, below we highlight some forms by which this discussion became present in dialogs about work and education in Brazil.

Machado (1989), when analyzing the origins and meanings of the idea of school unification and the proposals that stem from them, whether from a liberal-bourgeois perspective, or from a socialist or proletarian perspective, situates the concept of polytechnicalism within the framework of class struggle, as originally formulated by Marx, for whom the combination of education and work would be the "first and insufficient concession" (Marx *apud* Machado, 1989, p. 99) from capital to the working class. This concession would, however, not be due to an act of benevolence but to the same social contradictions that would generate the seeds to overcome capitalist society. Thus, for Machado (1989, p. 126):

In Marx's conception, Polytechnic education, the multifaceted preparation of man, would be the only one capable of accounting for the dialectical movement of continuity-rupture, because it would not only be articulated with the historical trend of social development, but would strengthen it. Polytechnic education would, therefore, be like a yeast of transformation: helping to increase production, strengthening the development of the productive forces and intensifying the main contradiction of capitalism (between growing socialization of production and private mechanisms of appropriation).

According to the author, at the same time in which polytechnic education acts directly on individuals, it contributes to the development of the objective conditions of social transformation.

Kuenzer (2002, p. 87) indicates that in the context of worker education, polytechnic education is also and fundamentally a question of an epistemological nature, since:

Polytechnicalism supposes a new form of integration of several types of knowledge that break artificial blockages that transform the disciplines in specific compartments, an expression of the fragmentation of science. [...] In this conception, it is clear that knowing the totality is not a matter of dominating all the facts, but the relationships between them, always rebuilt in the movement of history.

Frigotto (2003, p. 173) makes use, without distinction, of the terms omnilateral, polytechnic or technological education, when referring to the conceptual axis around which education for Brazilian society was considered in the 1980s. He emphasizes that the *omnilateral, polytechnic or technologic* human education and the *unitary school* compose two sets of articulated philosophical, pedagogical and political categories.

Another reference for the debate around the idea of polytechnic education is Dermeval Saviani, for whom "the notion of polytechnicalism moves towards overcoming the dichotomy between manual labor and intellectual labor, between professional instruction and general instruction" (Saviani, 2003a, p. 136). This author localizes in the concept of polytechnicalism the opportunity to overcome the rupture between science and technology in that it postulates a working process that develops by the indissoluble unity of manual and intellectual factors. For Saviani, polytechnic education involves "the mastery of the scientific bases of the various technologies" (*idem*, p. 140).

In a dialog with Saviani and others, Nosella (2007, p.137), affirms: I believe that by raising the flag of *polytechnic* education, Marxist Brazilian educators, semantically address a historically outdated theoretical position, although in the 1990s it was the position of the majority of those educators". Nosella's arguments in defense of this position are of a semantic, historic and politic nature (*idem*, p. 141). He affirms that several meanings were attributed to the term with the intention of bringing it closer to the Marxist camp without, however, the rigorous semantic concern of investigating its origins and meanings throughout history, which he therefore proposes to do. Based on his analysis, he concludes:

It is important to reaffirm that Marx, as all the classics, is a master of method, not of doctrine and, even less, of language. His educational proposal consists of the pedagogical-school formula of "intellectual, physical and technological instruction for all [...] public and free [...] of the union of teaching with production [...] free of political and ideological interference" (Marx *apud* Manacorda, 2006a). The Marxian formula does not allow emphasizing one or another element. In that sense, the expression "omnilateral" is a good one, because it connotes the whole. Later, Gramsci uses the term "unitarian", which adds to the educational aspects the idea of integration. However, both he expressions "omnilateral" and "unitarian" emphasize the quantitative sense, that is, that which encompasses *all the aspects*. If we asked about what would be the founding and structuring category of the Marxist pedagogical-schooling formula, I believe that we should resort to the anthropological category of full freedom for man, all men (*idem*, p. 148).

It seems to us that Nosella diverges from the use of the term polytechnicalism and not from the idea of integral human formation for which work is a principle, however, this is substantial and it is not just a semantic issue, as he affirms.

As we have seen, there is a clear convergence in the work of Marx and Engels, with Gramsci and other researchers in the field of work and education in assuming work as the basis of education from the perspective of human emancipation and autonomy. Nonetheless, the polemic around the following question is also evident: can this type of education contemplate the professionalization of adolescents and young people - as in the case of high school integrated with professional education (Integrated High School),<sup>2</sup> without conflicting with the educational principle of work? We will deal with this question in the next section.

## INTEGRATED HIGH SCHOOL EDUCATION: THE ROAD TO POLYTECHNICALISM OR SUBJECTION TO CAPITAL?

We begin with the understanding that in omnilateral, polytechnic or integral education, whose genesis is in the works of Marx and Engels, and in Gramsci's unitary school, there is no space for professionalization *stricto sensu* when considering the education of adolescents and having human emancipation as a reference. According to these authors, educating adolescents for a given profession would enhance their unilaterality at the expense of their omnilaterality.

In this sense, Nosella (2011, p. 1.062) states:

For us, the big question is the following: how to prioritize the dimension of autonomy in the Brazilian high school, when the majority are barely free? How to protect adolescents' rights to a fair time for 'active and heuristic professional uncertainty' when, on the one hand, the young minority of the ruling class enjoys many years of education and *professional indecision* while on the other hand, the vast majority, in order to survive, is forced to make a precocious professional definition? The answer to this problem involves the political struggle aimed at making a more just and equal society and, at the same time, the defense of pedagogical concepts and practices that strengthen unitary, non-vocational high school for all.

We agree with this perspective, but we will try to demonstrate that Marx and Engels, when discussing polytechnicalism in its full sense, which is compatible with Gramsci's concept of the unitary school, refer to a future possibility that would be materialized in a society in which the working class has risen to political power.

When discussing the education of the time they lived in - in a capitalist society - they admit the possibility for professionalization when associated with intellectual, physical and technological education, understanding it as the germ of the education of the future (Marx, 1996).

Since the capitalist system and bourgeois social relations continue to be hegemonic, if the hypothesis above were correct, the current discussion about polytechnic education and the unitary school, in their complete sense and for all, are

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2 In portuguese: ensino médio integrado

focused on the future. In this case, the Integrated High School can be the genesis of that formation.

We will begin by reviewing some texts of Marx and Engels.<sup>3</sup> For this purpose, we will follow the road chosen by Manacorda, since we share with him the understanding that these texts are representative of Marxian pedagogical thought.

The following texts were analyzed: *The Manifesto of the Communist Party* (1997)<sup>4</sup>; *Capital* (1996) and *Instructions for the Delegates of the Provisional Central Council*; *The different questions* (1982a)<sup>5</sup>; *Critique of the Gotha Program* (1982b)<sup>6</sup>.

In the *Manifesto of the Communist Party* (1997), of 1848, Marx and Engels state that after the first step of the workers' revolution – the elevation of the proletariat to the ruling class – some measures must be implemented "that economically seem insufficient and unsustainable, but that during the course of the movement go beyond themselves and are inevitable as means for revolutionizing the entire mode of production". The tenth measure is "Public and free education for all children. Elimination of child labor in factories in modern form. Unification of education with material production, etc." (*idem*, s.p.)

The logic of the *Manifesto* is, therefore, to achieve "the conquest of democracy through struggle" (*idem, ibidem*) and apply measures that were initially insufficient, but which will gradually "tear away, little by little, all the capital from the bourgeoisie to centralize all the instruments of production in the hands of the state, that is, of the organized proletariat as the dominant class" (*idem, ibidem*). In the educational field, they indicate this will involve, among other aspects, the "unification of education with material production". Therefore, Marx and Engels, in the *Manifesto*, only see the unification between education and material production as a possibility capable of being fully realized *in a future society*.

Evidently the struggle of the working class towards political power will produce though conflicts between capital and labor, advances in the effort to overcome bourgeois society, including its form of education.

Almost twenty years after *The Manifesto*, Marx, in the *Instructions to the Delegates*, of 1866, formulated a set of theses to be incorporated to the party program, to strengthen the struggle for political power. He presented a more elaborate text about the socialist concept of education, based on the integration between the intellectual, physical and technological dimensions, already discussed, and whose genesis was the "unification of education with material production", as he had previously outlined in the *Manifesto*.

The first volume of *Capital* was published at almost the same time, so when Manacorda (2007, p. 45) refers to the *Instructions to the Delegates*, he declares that "The reading of this text must be immediately associated to that of another of Marx's fundamental texts, *Capital*".

3 This includes the thought and texts by Engels, since these authors are inseparable.

4 Published for the first time at the end of February 1848, in London.

5 Published for the first time in October–November 1866, in the *Der Vorbote* magazine

6 Written in 1875 and partially published for the first time in 1890/1891 in the *Die Neue Zeit* magazine.

In this way, coherently with the thesis about teaching found in the *Instructions to the Delegates*, in *Capital*, (Chapter XIII), when referring to the English factory legislation, Marx makes clear that in the struggle for the conquest of power, there are intermediate phases that are engendered by the changing relative positions of the contending classes according to the correlation of forces between them.

The author raises "as the first concession painfully torn from capital" (Marx, 1996, p. 116) the conjugation of elementary education with factory work that, although still far from polytechnic, carries its seed. He concludes, stating that "there is no doubt that the inevitable conquest of political power by the working class will also be a conquest of the theoretical and practical teaching of technology in schools for workers" (*idem, ibidem*).

We conclude, therefore, from the joint analysis of the *Instructions to the Delegates* and *Capital*, that, as in the *Manifesto*, the prospect of polytechnicalism, in its full sense, is raised for a society in which the working class has conquered political power, but it is possible to move in this direction, even in bourgeois society, taking advantage of the contradictions of the capitalist mode of production.

We now examine the *Critique of the Gotha Program*, written about ten years after the *Instructions to the Delegates* and *Capital* and almost thirty years after the *Manifesto*. This is a tough and polemical critique written by Marx and with a preface by Engels, to what would become Germany's Socialist Workers Party Program, the result of the unification of the Social-Democratic Labor Party and the German General Workers Union.

Regarding education, according to Marx (1982b, s.p., italics in the original), the Program proposes:

The German Workers' party demands as the spiritual and ethical basis [*sittlich*] of the State: "1. *General and equal popular education* by the state. General compulsory education. Free instruction".

The author, when analyzing the proposal, predicts:

*Equal elementary education?* What idea lies behind these words? Is it believed that in present-day society (and it is only with this one has to deal) education can be *equal* for all classes? Or is it demanded that the upper classes also shall be compulsorily reduced to the modicum of education — the elementary school — that alone is compatible with the economic conditions not only of the wage-workers but of the peasants as well? (*idem, italics in the original*).

An understanding of the whole body of work by Marx and Engels proves that the harsh critique of the Gotha Program is because Marx understand its materialization was impossible at the time. The critique lies in the fact that instead of submitting a dialectically feasible thesis, it is a statement of intent, with no possibility for materialization, since it is detached from concrete reality.

For this reason Marx (*idem*) continues the critique asserting: "The paragraph on the schools should, at least, have demanded technical schools (theoretical and practical) in combination with the elementary school".

Therefore, we corroborate Manacorda (2007, p. 54) when, referring to this text, he explains Marx's determined rejection of

[...] equal education for all classes at least as an aim to be immediately accomplished in today's bourgeois society, [...] education cannot be suddenly presented equally to all classes, without the evident risk of a reduction of its level, as it is said today. [...] However, it is precisely [...] that which is reaffirmed in current society [modern], that in future society will be different: it is 'no wonder that the link between school and work (that according to the 1866 *Instructions*, also comprises the intellectual education that would lift the working class far above the upper and middle classes) appears here formulated as one of the most powerful means for transformation of society today.

Now, we will seek in Gramsci evidence that his rejection of professionalization in the final stage of basic education is also set in a future perspective, thus one that is different from the Italian society of the first half of the twentieth century, from which he produced most of his work.

The concepts of Gramsci's unitary school, and those of polytechnic education originating from Marx and Engels are not conflicting. To the contrary; we understand that they are complementary and that Gramsci goes deeper in an aspect of polytechnicalism that was not much explored by Marx and Engels, which is its intellectual, cultural and humanistic dimension.

Manacorda (*idem*, p.137), when establishing a dialog between these authors, affirms that

There is a common tendency to emphasize, in Gramsci, the cultural, humanistic moment; and there would be nothing to object to in this trend, since, along with the precise propositions of the Marxian proposal concerning the link between education and work, Gramsci places a conscious emphasis on the cultural requirement that, in the above context, he defines as humanistic and formative. But just as it would be wrong to understand that humanism in the traditional sense, it would be even more incorrect to point out these cultural elements, their separation [...], forgetting, in short, that these elements are very much present, as well, in Marx, who, not by chance, talks about intellectual or spiritual education (*geistig*) and, as we have already seen, knows well how to appreciate the richness of man's spiritual life.

Agreeing with Manacorda, we conclude that the unitary school approaches the concept of omnilaterality and it is the place where this should occur. Gramsci (2000a, p. 36), defends that

The unitary or humanistic education school [...] or of general culture, should assume the task of inserting young people in social activity, after having led them to a certain degree of maturity and capability, to intellectual and practical creation and to a certain degree of autonomy in orientation and initiative.

Here we find the clear link between the unitary school and polytechnic education. In the first place, we wish to clarify Gramsci's understanding of "humanistic formation". For the author, humanism cannot be understood in its traditional, liberal form, aimed at education based on rote memorization, but a humanism that contributes to the development of individuals' ability for "intellectual creation and practice" and an understanding of the social totality, having the educational principle of work as its basis.

For Gramsci, there is no space for professionalization in this school. In this way, he criticized the Italian trend to "abolish any type of 'disinterested' (not immediately interested) and 'formative' school, [...] as well as those which increasingly promoted specialized vocational schools, in which the fate of the student and his future activity are predetermined" (*idem*, p. 33), leaving his anti-professionalizing stance explicit. For him, be it at the university level or not, professional education should come after the unitary humanist school, of general culture.

Therefore, like Marx and Engels, Gramsci also considered the unitary school as a possibility for the future and, that in this way, within the current society of his time the concrete material conditions hinder its full materialization, for everyone.

We find evidence of this "concession" when Gramsci recognizes that "the setting of the compulsory school age depends on the general economic conditions, since these can require the youth to [make] a certain immediate productive collaboration" (*idem*, p. 36).

By affirming that at the present the *general economic conditions* may require young people to work before having finished the unitary school, he does not directly admit professionalization, but recognizes the need for the existence of different schools in a transition phase, which refers to the possibility of early professionalization of young people whose living conditions require it.

The author continues aligning facts that initially impose limits on the unitary school. He acknowledges that many changes, essential to its materialization require political decisions and substantially increasing the budget intended for education:

The unitary school requires the state to assume the costs that are now the responsibility of the family, with regard to the maintenance of the students, that is, to completely transform the budget of national education, expanding it in an unexpected way and making it more complex: the entire function of education and the education of young people becomes, rather than private, public, for only then can it involve all generations, without divisions of groups or castes. But this transformation of school activity requires an unforeseen expansion of the practical organization of the school, that is, of buildings, scientific equipment, teaching staff, etc. (*idem, ibidem*).

He concludes by explaining that "therefore, initially, the new type of school should be - and cannot fail to be - something belonging to small groups of young people chosen by competition or indicated, under their responsibility, by qualified institutions" (*idem*, p. 37).

From his conclusion, it is understood that the move towards the unitary school would not occur without a transitional phase. Quite the opposite, this phase in which different schools would coexist, among them technical ones, is unavoidable.

The author does not make this claim directly, but his affirmation that in Italy there was a tendency "to increasingly promote specialized professional schools" and that the new type of school, would initially not be for everyone, demonstrates his awareness of the continuity of these schools for a period that is impossible to accurately predict.

After reviewing the educational issues in Marx and Engels and Gramsci, we conclude that our starting hypotheses are valid. In this way we defend that, even today, polytechnic education and unitary schools can still not be realized in their full senses, for everyone and immediately. However, we also conclude that it is possible and necessary to plant and care for the growth of the seeds of integral, polytechnic, unitary education, taking advantage of the contradictions of the capital system.

Thus, along the "journey" it is still necessary to lay claim to "technical schools (theoretical and practical)", based on the educational principle of work, where the seed is placed that can raise the education of the working class well above the level of the higher and middle classes.

If that thesis is valid for the working class in general, it is even more true for Brazil, immersed in neo-liberal capitalism, as is most of the planet, and being on the outskirts of that system.

In our country, the situation of the working class is much more degrading than in advanced capitalist regions, which somehow or other passed through a welfare state stage which guaranteed workers some basic social rights even in the midst of the current crisis.

In Brazil, the extreme socio-economic inequality requires a large part of the children of working class families to seek, well before the age of 18, entrance into the world of labor, to complement the family income or even for self-sustenance, with very low schooling and no professional qualification, fattening the rows of simple labor and contributing to capital valorization.

Returning to Marx and Engels, in the *Critique of the Gotha Program*, and thinking dialectically about real social development, we ask ourselves: given the concrete reality, can we in Brazil today think about the school education of adolescents and youth in the working class, denying any possibility of them having to work before they are 18 years old?

Some social indicators of the population of up to the age of 17, taken from the Pesquisa Nacional por Amostra de Domicílios [National Research by Household Samples] (PNAD) of 2008, help find answers to this questioning. Analyzing the research data we find that 41.9% of 16 and 17, year olds are working. If we consider that the 3.3% of this age group, who neither study nor work, are much closer to work than to school, as much as 45.2% of those in this age group can be considered workers (whether or not they are formally employed).

The amount of children and adolescents between 10 and 15 who work is also significant. There are 2,517,412 (11.8%) in this condition. It is important to point out that in Brazil it is illegal to work before the age of 14. In other words, in

the 10 to 15 year-old age group, only those between 14 and 15 can work legally. Furthermore, among the youngsters from 10 to 17 who work, 19.1% began working when they were 9 years old.

And why do these young people work? The PNAD 2008 states that the majority of youngsters between 10 and 17 belong to very poor families. Of the 58.5 million children in this age group who live in private households, 77.1% live in households where the monthly per capita income is at most one monthly minimum wage and, 91.7 live in households where the monthly per capita income is no more than two minimum wages.

This is why the earnings of these people are significant for the survival of the family group, since 58.6% of the children and adolescents between 5 and 15 contribute with more than 10% of the family income, and 15.4% are responsible for more than 30% of the household budget.

Given this situation, doesn't thinking in coherence with dialectic historical materialism mean to understand this socio-economic reality and try to *tear away from capital* concessions that can contribute to the integral education of the working class? Isn't this true even if the concept of polytechnic education is not fully realized for all, and everyone is still not assured the inseparability between "intellectual, physical and technological education". Of course we must continue to denounce and struggle against all the atrocities committed against these adolescents, children and young people.

The analysis developed allows us to reassert that in Brazilian education today, this form of education is a theoretical and ethical-political possibility for high school education that guarantees a unitarian basis for all, grounded on the concept of integral, omnilateral or polytechnic human education, having as an organizing focus work, science, technology and culture and, on this basis, also offer, as a possibility, an Integrated High School education.

We thus agree with Frigotto, Ciavatta and Ramos (2005, p. 43) who affirm:

If professional preparation in high school is an imposition of reality, legally admitting this need is an ethical problem. However, if what is pursued is not only to address this need, but to change the conditions in which it is constituted, it is also an ethical and political obligation to ensure that secondary education is developed on a uniform basis for all. Therefore, a high school integrated with technical education, upon a unitary basis of general education is a necessary condition for making the "journey" to a new reality.

Evidently, that "journey" to which the authors refer to, is the construction of a future society so often mentioned by Marx and Engels and discussed throughout this text. The idea of the "journey" may evoke a comprehension of history as a succession of stages. This is not the concept we defend here. We understand it as a movement of continuity and rupture, from which the new is engendered from the old.

Throughout this "journey", the two ways of organizing polytechnic high school education – with or without professionalization – are coherent and can co-

exist until the objective material conditions of Brazilian society are such that they allow the young people of the lower classes to complete basic education at about 17 or 18 years of age and only then think about a profession. Today, this is a "luxury", long guaranteed as a right only for young people in middle and high strata of the population.

Meanwhile, it is important to remember that the large portion of Brazil's adult population, has low schooling. Machado (2010) affirms that there are almost 135 million people in Brazil, 18 or older, of whom 101 million, or 75% of this age group, who have not completed basic education. To identify the amount of people in that universe who require schooling, the author, based on the data above, asserts:

In planning for the provision of differentiated education, for those 60 years and older for example, [whose needs] would not necessarily compare to a basic education, as well as the population from 18 to 59, who represent a total of 79,511,036 people, compose the potential demand for basic education (*idem*, p. 252).

The study significantly reinforces the argument presented, considering that in adulthood a human being is essentially a subject of work, responsible for the production of his or her own existence and that of society, besides from being responsible for the reproduction of the species.

Meanwhile, in the Brazilian case, the great majority of these nearly 80 million people is cast out from the world of labor or acting precariously on its outskirts. And the tough reality obliges us to remember that this serves the interests of capital, since given there is not enough space for all, let the best win!

## PROJECTS IN DISPUTE: FINAL WORDS

We shall seek to demonstrate that the struggle for an educational project that strives towards the affirmation or denial of integral, omnilateral or polytechnic perspectives occurs within the scope of the state in its relationship with civil society or social movements and expresses the movement of what is real in the dispute of social projects.

The educational policies of the 1990s established, as a whole,<sup>7</sup> the compulsory separation between high school and professional education and submitted the curriculum to the pedagogy of competences, intensifying the instrumental character of education, especially in the field of professional education.

These policies have been widely discussed in other studies (Frigotto; Ciavatta, 2006; Kuenzer, 2006; Ramos, 2004, among others). We will focus on what

7 We refer to Decree nº 2.208/1997, to Opinion CNE/CEB nº 15/1998 and to Resolution CNE/CEB nº 3/1998, which would establish the national curriculum guidelines for high schools; to Opinion CNE/CEB nº 16/1999 and to Resolution CNE/CEB nº 4/1999, which would establish the national curriculum guidelines for the technical vocational school at the high school level, professional schools and for the Expansion Program (PROEP).

has been taking place since the year 2000, highlighting the clashes around the relationship between high school and professional education. Decree n° 5.154/2004 opened the possibility for integration between the two, creating an opportunity for advancement towards polytechnic education, but to accommodate and express contradictory positions maintained the subsequent and concomitant forms of high school and professional education.

In the same period, the Secretariat of Secondary and Technological Education (SEMTEC) was divided to create the Secretariat of Basic Education (SEB) and the Secretariat of Professional and Technological Education (SETEC), strengthening the bias of separation between basic education and professional education. SETEC would be responsible for the technical high schools in the federal system, while SEB would be responsible for all of the high schools, both the propaedeutic and the integrated, in public state and municipal networks. This movement also had repercussions on the relations between the Ministry of Education and Culture (MEC) and the state departments of education, and within the state's, always in the sense of dichotomizing relations between high school and professional education.

As a result, the processes established in SETEC and in the SEB were different and not coordinated. The lack of effective action by SETEC to exert its inductive and coordinating function, as well as the emergence of other government programs and projects that became priorities, diverted the focus of the federal network from the search for the theoretical and practical construction of integrated high school education.

In 2007, coordinated by the SEB, the Federal Government launched the Programa Brasil Profissionalizado [Professionalized Brazil Program] to encourage the states to establish integrated high school education. This program was organized in a way in which the federal government would finance school infrastructure while the states would provide a counterpart, such as creating or preparing the teaching staff. As a result of distortions resulting from the Brazilian federal system, most states, although they submitted projects and received significant resources to enact the program, do not have nor are they establishing a staff of permanent teachers, especially for the specific disciplines of professional education and technical courses at the high school level are not advancing in most states.

Another movement to be highlighted is the expansion of the federal network. This involves the presence of the Brazilian State through institutions recognized for their quality in the peripheries of capital cities and in regions far from large urban centers. This means an expansion of possibilities for many Brazilians by providing access to quality education, since, today, few state networks are able to guarantee this right to the population are few, although it is the responsibility of the states to provide universal access to high school. On the other hand, in this movement the government established a new configuration for the federal network, creating the Institutos Federais (IF) [Federal Institutes], through Law N°. 11.892/2008. Previously, the focus of the discussions in the network was on their social function in the context of expansion and mainly, on the meaning of integrated high school education, including the Youth and Adult Education (EJA) modality. Later, the discussions moved towards issues of an organizational nature, such as the physical and administrative infrastructure of the new institutions, the

occupation of the jobs created etc. In this path, marked by short-term thinking and improvisation, the building of well-founded educational projects, elaborated collectively and coherently with the local and regional socio-economic reality of each new unit became neglected.

This partially mitigated the positive results of the expansion. It is worth mentioning that at the same time there was a recrudescence of the discourse, even an official one, about a shortage of qualified manpower in Brazil and, therefore, of the need to quickly prepare workers to meet the immediate needs of the labor market.

Other important movements were the elaboration of new Diretrizes Curriculares Nacionais para a Educação Profissional Técnica de Nível Médio [National Curricular Guidelines for Technical Professional Education at the high school level] (DCNEPTNM) and for high school education in general [DCNEM]. Although the legal basis for the integrated high school from the polytechnic perspective dates to 2004 (Decree nº 5.154), only in 2010 was the discussion taken up about the need for establishing new guidelines, through a proposal of the National Education Council (CNE).

Parallel to the progress of the guidelines in the CNE, a working group was organized, made up by researchers in education, with the participation of the MEC and other public agencies, and produced two texts about the curriculum guidelines for technical and professional and other high schools DCNEPTNM - DCNEM and sent proposals to the CNE. The two documents have concepts concerning both high schools and professional education, including all its modalities, based on polytechnicalism and integral human formation, and as a historical horizon, overcoming the duality between basic and professional education, through a curriculum based on the concept of integration and having as guiding foci work, science, technology and culture (Work Group, 2010a, 2010b). These documents were handled differently by the CNE. While the document about the general high school education (DCNEM) was practically totally accepted by the rapporteur, becoming the basis of the new curricula guidelines approved (Opinion CNE/CEB Nº 05/2011) the DCNEPTNM proposal concerning technical and professional education approved by the National Education Council (Opinion CNE/CEB Nº 11/2012) revived concepts aligned with the perspective of fragmentation of integrated education and competences for employability.<sup>8</sup>

This reveals another contradiction. On one hand, the DCNEM points towards the integral education of individuals.<sup>9</sup> On the other hand, the DCNEPTNM (Opinion CNE/CEB nº 11/2012 and Resolution CNE/CEB nº 06/2012) goes in

8 For further clarification on the process that led to the new DCNEPTNM and DCNEM we suggest seeing Ramos, Ciavatta and Frigotto (2012).

9 Evidently, only this does not guarantee its materialization in the schools, even because the necessary financing is not ensured, since the horizon set to expand investments in education to 10% of the GDP is of 10 years and this has not been definitively approved.

the opposite direction and, even before it was approved, had ample funding under the PRONATEC program.<sup>10</sup>

This program provides public financing to the private sphere, with priority for the "S" system (a national system run by corporate associations that provides technical and professional training in a variety of sectors) and for students in propaedeutic public high schools to take concomitant technical courses in these organizations. The program involves R\$ 24 billion (Brasil, 2012) most of which are intended for the "S" system, including to finance "the expansion of the physical infrastructure for national learning services" (Item III, of Art. 4º Law nº 12.513/2011).

PRONATEC also contributes to remove responsibility from the states for providing teaching staff for professional education – a large barrier to the materialization of the Professionalized Brazil Program – since, by establishing partnerships with the "S" system, aiming at establishing concomitance, it tends to reduce the pressure on the states to make significant improvements in the quality of the high school education provided to the working classes. The states delegate to the "S System", which are controlled by corporate associations, the education of the students of the public education networks – and finances the process –, granting them the right to determine the conception of the education to be offered.<sup>11</sup> This is an approach that subordinates human education to the pedagogy of competences and the immediate needs of the market.

Contrary to this process, there are experiences inspired by social movements – highlighted by the Landless Workers Movement (MST), which is an important protagonist in Brazil, especially among rural workers – and, in this sense, the educational projects it has developed are a reference in the analysis of the possibilities for an educational project integrated to a counter-hegemonic social project of workers.

In this way, the concept of rural education that has been established in Brazil by the MST and other social movements in recent decades, is not only the construction of a proposal for educational policy, but of a conceptual, pedagogical, political and ideological struggle. The MST envisions this trajectory and perspective in this way:

Almost at the same time the MST began struggling for land, through families who first established camps and later settled land, the MST also began struggling for the access of the Landless to public school; *we acted to provoke the state to act*; we constructed and pressured for public policies for the rural population. That is how we reached, first in practice and later in concept, to *rural education*, defending the right that a population has to be educated and to think of the world based on what it does and from the place it lives in (MST, 2004, p. 12, italics in the original).

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10 National Program for Access to Technical Teaching and Employment. Created by Law nº 12.513/2011.

11 It should be highlighted that the priority of the program is not technical education, but the initial and continuous education courses (FIC) or professional qualification with a minimum workload of 160 hours and not linked to greater formal schooling.

The struggle, which at the beginning was concentrated on elementary education for children and teenagers, was extended to the education of young people and adults, child education, high school and higher education. The balance of twenty years of action performed by the MST's education sector indicates, in its educational proposals and practices, the presence of the integral human education, based on the union between work and education, approaching the perspective previously analyzed:

We learn that the human education process experienced by the collective struggle of the landless is the great matrix for thinking of education focused on the development of the human being, concerned with the formation of individuals who are actors in social transformation and in the permanent struggle for dignity, justice and happiness. We seek to reflect on the set of practices that is the daily activity of the landless, and extract from them lessons of pedagogy, that allow qualifying our educational intentionality together with an increasing number of people. We also learned that the school must be part of this process; we seek to reflect about the pedagogy of a school that assumes the link with this fight and this Movement (*idem*, p. 14).

This union between education, work and social struggle goes far beyond what could be considered a specific task of the school. According to Roseli Caldart (2000, p. 143, italics from the original text),

[...] it is not possible to understand the meaning of the education experience of the MST if the focus remains fixed on the school. Only when we come to look at the whole Movement, and with a view to see it in its historical dynamics (that includes the school) is when we are able to understand that *education can be more than education* and that *school can be more than school*, in the measure in which the bonds that constitute their existence in this reality are considered.

The experienced of the Landless Workers is the reference of the document *Princípios da Educação no MST* [Education Principles in the MST], in which the philosophical and pedagogical principles of the movement's educational proposal are established. The philosophical principles include: education for social transformation; education for work and cooperation; education focused on the various dimensions of the human person; education with and for humanist and socialist values; and education as a permanent process of human development and transformation (MST, 1999).

We identify in these principles a clear approximation of the MST proposal to the Marxian thesis, of the union between work and education and omnilaterality.

Concerning the pedagogical principles, the MST highlights: the relationship between practice and theory; reality as a basis of the production of knowledge; attitudes and research skills; socially useful educational contents; education for and through work; an organic link between educational and political processes; an organic link between educational and economic processes; an organic link

between education and culture; democratic management: collective management; self-organization of the group of students, both male and female, pedagogical collective groups; and combination between collective and individual pedagogical processes (*idem*).

In summary, the analysis of the elements that guide the MST's educational proposal reveal the centrality of work in the production of the material and intellectual reality and in the production of knowledge and culture, approaching both Marx and Engels proposals concerning the conception of polytechnic education as well as the Gramscian perspective of educational principles of work and the unitary school.

On this bases we reiterate that it is an ethical-political imperative to establish integral human education constituted on a unitary basis. In spite of this, considering the concrete reality, it is important to summarize the multiple difficulties the materialization of this educational conception faces.

The first is the direct political dispute with capital, since its organic intellectuals vehemently defend education that immediately serves market interests. Meanwhile, the federal government has an ambiguous position: while it offers a discourse of polytechnic and integral human education, it does not go much beyond words. It thus defends the interests of capital, in the name of the workers' and the poor. In this case, it promotes exorbitantly funded actions such as PRONATEC. The workers are left with the task of organizing to struggle against these positions.

In the sub-national spheres, the situation is even more complex. In the absence of a National Education System, of an educational conception that guides it and the coordination of actions at a national level, with each electoral cycle, the states and municipalities, as in the case of the federal sphere, take new directions. Each level of government winds up defining its own routes and measures, which are often antagonistic.

In general, it can be observed that the metabolism of capital leaves the education provided to the working class with a certain internal coherence among the three government spheres and the pendulum always swings towards the type of education that serves the immediate needs – of capital.

Moreover, society in general – and particularly the non-organized popular working classes, who have historically been cast aside from access to a socially relevant quality education – is always avid for any crumb thrown to them and, in this way, tends to applaud, give thanks and clamor for a few more of those crumbs.

The proposal for integral human education and for integrated high school education also face criticism from academics, from the more conservative currents, who defend academic education inspired by the Enlightenment, by "liberal humanism", and even by progressives, who consider it as a concession to the interests of capital.

Therefore, by allowing the academy, other intellectuals, most of the working class and their representative entities to politically dispute the concept of polytechnic high school education and polytechnic high school education integrated to professional education (for adolescents youths and adults), which can be realized as a journey towards omnilaterality, we have opened space and rolled out the red

carpet for capital to appropriate historic struggles of the socialist field and joyfully resignify them in favor of its own interests, with public financing and applause from the population.

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