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## VOCATIONAL EDUCATION IN BRAZIL: HISTORY AND POLICIES OF FEDERAL INSTITUTES

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FORMACIÓN PROFESIONAL EN BRASIL:  
HISTORIA Y POLÍTICA DE LOS INSTITUTOS FEDERALES

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EDUCAÇÃO PROFISSIONAL NO BRASIL:  
HISTÓRIA E POLÍTICA DOS INSTITUTOS FEDERAIS

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### ABSTRACT

This article analyzes the segments of the population benefited by vocational education throughout its history and, more recently and specifically, in the regular technical courses integrated to high school curriculum in the Brazilian Federal Institutes (IFs, in Portuguese). The study was based on a multimethod research on the early days of vocational education in Brazil, considering that, in the past, it has focused on underprivileged students, to tackle marginality and to facilitate their full entry into the labor market. However, this course has changed when selecting students to technical schools, and this dimension is approached by focusing on the particularities of education policies for IFs, as we note that the original priority/target students of these institutions are not included in the current policies, only partially fulfilling IFs purposes.

**KEYWORDS:** Education policy. Vocational education. Integrated education.

### RESUMEN

El presente artículo analiza los segmentos de población privilegiados en la formación profesional a lo largo de su constitución y, más recientemente y de forma específica, en la enseñanza secundaria integrada en los Institutos Federales (IFs). Es el resultado de una investigación multimétodo sobre los primeros días de la educación profesional en Brasil, dado que se dirigía a los desfavorecidos, tanto como una forma de contener la marginalidad como una posibilidad de futura entrada en el mercado laboral. Sin embargo, este curso cambia cuando se solicitan formas de examen de selección para el ingreso en escuelas técnicas. Esta dimensión se aborda centrándose en la particularidad de la política educativa dirigida a los IFs y se observa que no se contempla el público objetivo prioritario de la institución y, por lo tanto, cumple parcialmente sus propósitos.

**PALAVRAS-CLAVE:** Política educativa. Educación profesional. Enseñanza media integrada a la formación profesional.

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**RESUMO**

Este artigo analisa os segmentos da população privilegiados pela educação profissional no Brasil ao longo de sua constituição e, mais recente e especificamente, no ensino médio integrado nos Institutos Federais (IF). Resulta da investigação, de caráter multimétodos, a constatação sobre os primórdios da educação profissional no Brasil, que se destinava aos desvalidos da sorte e da fortuna tanto como forma de contenção da marginalidade quanto como possibilidade de futuro ingresso no mercado de trabalho. Todavia, esse curso se altera ao inscrever formas de seleção para ingresso nas escolas técnicas. Tal dimensão é abordada focalizando a particularidade da política educacional destinada aos IF, e constata-se que o público-alvo prioritário da instituição não é contemplado e, portanto, cumpre apenas parcialmente seus desígnios.

**PALAVRAS-CHAVE:** Política educacional. Educação profissional. Ensino médio integrado.

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**1 INTRODUCTION**

This article discusses the education policy established by Federal Institutes (IFs), focused on regular technical courses integrated to high school (EMI, in Portuguese), especially concerning its target audience and its main goal of ensuring “the sustainability of actions aimed at incorporating, first of all, social sectors that have historically been excluded from the development and modernization processes in Brazil” (BRASIL, 2010, p.21). Thus, our hypothesis is that, even with the adoption of affirmative actions, the institution still follows the actions of the first technical schools, including different students from those intended in the official documents, when adopting selection mechanisms that are distant from the reality of low-income students.

The results presented here are part of a quantitative-qualitative research conducted in six IFs and in a similar institution in Germany<sup>3</sup>. One thousand nine hundred students of technical courses integrated to high school (EMI) answered an electronic questionnaire, and teachers and principals were interviewed based on a semi-structured script.

The text is organized into three parts. First, historical aspects of vocational education in Brazil are retrieved to highlight the privileged population benefited by the various policies implemented; then, we present the results from a quantitative research on the socioeconomic data of students of an IF *campus* in the countryside of São Paulo and our final considerations.

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<sup>3</sup> This text presents part of the results of the doctoral thesis entitled “Origin and destination: vocational education in Brazil and Germany” (BRAZOROTTO, 2020), with funding (for internship abroad) from the Coordination for the Improvement of Higher Education Personnel – Brazil (CAPES) – Funding Code 001, and support from the Federal Institute of São Paulo (IFSP).

Before the analysis, we conceptualize technical education<sup>4</sup> based on the social division of labor, which separates intellectual and manual labor, and whose insertion in production will create social inequality (MARX, 1982). As a teaching modality, it is aimed at the training of specialized professionals to meet the demands of the productive sector, having been established in central countries since the Industrial Revolution, with the need to systematize the technical and scientific knowledge applied to the industry.

In Brazil, the historical and structural duality of school education systems reflects the depreciation of manual labor, carried out by slaves over the last centuries, and has left deep scars on the cultural and social formation. According to Cunha (2000a), in the 19th century, the *Colégio das Fábricas* (School of Factories) taught certain crafts to orphans and served as a model for other institutions that housed the “destitute of luck” (BRASIL, 1909, [s. p.]), children aged 6 to 12 years, incorporating the teaching of manual labor, hierarchical obedience and discipline historically required for work.

The legal frameworks of education policies in Brazil perpetuate this trait by accentuating class division, establishing for the ruling class the right and access to propaedeutics and, for “segregated” classes, a training aimed at immediate entry into the labor market (CUNHA, 2000a; BRYAN, 2008).

## **2 FROM APPRENTICE SCHOOLS TO FEDERAL INSTITUTES: WHAT SEGMENTS OF THE POPULATION ARE SERVED?**

Apprentices Craftsmen Schools created by Nilo Peçanha in 1909 in the state capitals mark the most systematized process for the implementation of vocational education in Brazil, the embryo of future technical schools. They were free schools aimed at the training of apprentice craftsmen and intended to “children with socioeconomic disadvantages [...], to help them to acquire habits of profitable work that will drive them away from ignorant idleness, addiction and crime” (BRASIL, 1909, [s. p.]).

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<sup>4</sup> According to the current legislation, the concept “professional and technological education” refers to any stage of training for work in basic or higher education, while “technical education” refers specifically to vocational training at high school level. As for the main subject of this article, it should be noted that the Ministry of Education divides high school-level technical and vocational education into three types: (a) technical professional qualification, which may be in modules, with intermediate certifications, after completion of a course load of at least 20% of the curriculum; or (b) technical-professional habilitation of high school level, which is closely linked to the Brazilian Classification of Professions, as defined and updated by the Department of Labor of the Ministry of Economy, and the course load has around 800 and 1200 hours, all of which can be complete concomitantly, integrated with, or after high school; and, finally, (c) technical specialization for those who have completed high school, when 25% of the load has been completed.

In the context of the reform of the Estado Novo (1937-1945), Federal Technical Schools adopted the application of entrance tests, which would break the tradition of providing vocational education to the poorest population (CUNHA, 2000a).

However, in 1942, as a response to the advances of industrialization, the National Service for Industrial Apprenticeship (SENAI) was created, tributary of Nilo Peçanha's government conception, inspired by Henry Ford's spirit of innovation and assuming a role beyond technical training. It is noteworthy that Henry Ford organized work by rationalizing it and selling to society a notion of happiness based on consumption, putting into action an army of social workers to guide families on the organization and sanitation of households, family budget and schooling, especially in the case of immigrants in the United States (HARVEY, 1992).

In its documents, SENAI<sup>5</sup> (1946) notes that national service attended undernourished students who had no family assistance, so that they could have technical education.

It is frankly unfavorable to doctors and hygienists the impression caused by the health conditions of underage workers who apply for the ordinary and extraordinary courses of SENAI [...] 80% are infected by worms and protozoa; 60% have visual impairment; there are, on average, 13 cavities per mouth [...]. Their organisms are almost always malnourished and infected, resist poorly to infestations and infections to which they remain poor hygiene conditions prepare fertile ground for the spread and contagion of endemics and epidemics (SENAI, 1945, p. 91 *apud*<sup>6</sup> MARQUES, 2011, p. 2).

At the same time, through Decree No. 4,127 of February 25, 1942, the Federal Government advanced in the construction of the foundations of the Federal network, with technical, industrial, craft and apprentice schools. Thus, Apprentice Craftsmen Schools are transformed into technical schools throughout the states, establishing in São Paulo the São Paulo Technical School. The courses move from elementary to secondary education, aimed exclusively at preparing the workforce, and from then on, the term "technical" was coined to designate the training of specialized workers at the secondary level (MANFREDI, 2016).

This perspective is gradually strengthened, and during the civil-military dictatorship, Law No. 5,692/1971 (Brazil, 1971) approved compulsory vocational education for all the high school level.

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<sup>5</sup> SENAI is an Industrial Professional Learning System, a private institution of public interest, non-profit, linked to industries

<sup>6</sup> SENAI. **Relatório do Diretor Regional (Regional Director's Report)**. São Paulo, 1945, p. 91.

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The proposed reform implied “abandoning verbal and academic teaching to establish, vigorously, an elementary and secondary system focused on the needs of development,” read the message of the Minister of Education, Jarbas Passarinho, sent with the project that would give rise to Law No. 5,692 (BELTRÃO, 2017).

This reform could end the existing structural dualism if, according to the Marxist perspective (MARX; ENGELS, 1983), the technical work provided the access to a non-hierarchical triad, articulating the intellectual, corporal, and technological dimensions to reduce inequalities in education and of the social pyramid. Due to the authoritarian intensification of class division in the Brazilian military regime (MOTTA; REIS; RIDENTI, 2014), the measure associated professionalization with employment, far from the comprehensive formation of students and polytechnic education<sup>7</sup> (CURY et al., 1982).

If, given the hegemonic ideological beliefs, the proposal of the government in the 1970s not even considered such concepts, on the other hand, it consolidated in Federal Technical Schools a model of technical courses integrated to high school curriculum (EMI) supported by the high qualification of teaching staffs, adequate material and structural conditions of schools. This would increase the chances of entering in the labor market, as well as in higher education (FERRETTI, 1997; KUENZER, 2007; BULGARIA, 2016), although with the policy of admission and selection processes.

The re-democratization process in the country gave rise to intense debates and involved the scientific community in the policies for national education, which culminated in the 1988 Federal Constitution. However, this was also marked by consecutive political and economic crises that opened the way for several neoliberal measures, such as privatizations and to reduce the role of the State, especially in the late 1990s, when a reorganization of production led to the emergence of a logic of global competition between companies, which began to require a more flexible and multi-purpose worker in contrast to Ford’s rigidity (HARVEY, 1992).

Technical education followed this movement, and the Brazilian government promoted the Reform of Technical/Vocational Education through Decree No. 2,208/1997, which separated vocational education from basic education, which allowed offering vocational education separately. This measure is directly related to the context of post-Fordism, characterized by versatility, flexibility of labor relations and skillfulness in meeting the needs of the market (FERRETTI, 1997).

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<sup>7</sup> *Polytechnics education* is understood as the concept that associates theory and practice in an intellectual, manual, and corporal formation that favors full human development and, thus, allows the subject to have a critical and overcome the alienation resulting from repetitive work, a form that does not imply building useful knowledge for workers (MANACORDA, 2000).

Based on Ferretti (1997) and Kuenzer (2007), we note the dismantling of integrated technical courses that, with the decree, are no longer offered even in Federal Schools. Among the reasons alleged by the government was “to make the schools of the federal network less elitist” (FERRETTI, 1997, p.254), an argument supported by the recognized quality of these courses, which, according to Bandera (2016, p. 812), have started to attract a significant number of children of “white-collar workers<sup>8</sup>”, seeking better conditions to pass university entrance exams, and not the entry in the labor market, especially in technical areas.

Only in 2004 the offer of EMI would recover with Decree No. 5,154, and three modalities of technical course (high school level) began to be in force in Brazil (Table 1).

**Table 1.** Types of technical courses in Brazil – decree N. 5.154/2004

<b>Integrated High School (EMI)</b>	Integrated curriculum and single enrollment, in which the vocational and general education disciplines are taught jointly and at the same institution.
<b>Subsequent or post-high school</b>	Carried out after the end of high school.
<b>Concomitant</b>	Conducted in two ways: (a) the student attends vocational and secondary education at the same school, but in different courses and periods (internal concomitance), or (b) takes the two courses at different institutions and without links between them (external concomitance).

Source: Brasil (2004).

In 2008, the process of expanding the public offer of vocational education began, given the transformation of technical schools and other federal institutions<sup>9</sup> into Federal Institutes, through Law No. 11,892, which established as one of its priority goals the implementation of EMI in view of polytechnic education, having work, science and culture as education principles. It is understood that the philosophy expressed in the politics for the formation of citizenship aims to extrapolate the idea of education aimed exclusively at professional practice, envisioning education for life. Thus, the official documents that mark the inauguration of this new institution recommend the democratization of access to quality education for population segments that “historically have been alienated from the processes of development and modernization of Brazil and thus deal with this social debt” (Brazil, 2010, p.21).

<sup>8</sup> The author refers to the “white collars” of Wright Mills (1979), a somewhat graduate middle-class, employees.

<sup>9</sup> Technical schools linked to Federal Universities, agrotechnical schools and Federal Centers for Technological Education (CEFET), except for CEFET-PR and CEFET-TJ (Brazil, 2008).

However, this expansion included entrance exams such as the traditional exam with tests involving the content studied at elementary school or curricular analysis, giving priority to the highest grades, which has exacerbated the competition and excluded a portion of those interested in these schools, even in the case of those who are part of quota systems (social, racial and for public school students). These selective processes based on a supposed merit indicates the contradictory character of politics, which ends up, once again, excluding the less favored.

In the broader context, the creation of IFs followed the demands of employers that wanted qualified professionals and had the objective of stimulating applied research, with the development of new patents, aiming at the national economy growth and the insertion of Brazil in the global competitive scenario. To achieve these goals, IFs have been established to expand the offer of vocational and technological education at all levels and modalities, from basic to postgraduate education. Likewise, the law for the creation of IFs establishes the proportion of 50% for technical courses with priority to EMI, 20% for teaching degrees and the remaining 30% for other courses: initial and continuing education (FIC), higher technology courses, bachelor's, and postgraduate courses (Master's and Doctorate degrees and specializations) (PACHECO, 2010; DEITOS; LARA, 2016).

The creation of IFs and the expansion of the Federal Network of Vocational, Scientific and Technological Education (RFEPCT) are considered a breakthrough in the public policies of Vocational Education established in the period. Between 2002 and 2016, the number of federal schools throughout the country increased by 360%, which should be accompanied by an increase of students in the area, with more access to vocational courses, especially EMI (PACHECO, 2010).

According to Oliveira (2017), most Brazilian public schools that primarily serve the poor leads a significant portion of them to precarious jobs or unemployment. In addition, there are in Brazil about 1.7 million young people, aged 15 to 17, who are out of school (BRASIL, 2018).

On the other hand, the number of enrollments in high school in 2019 was 7.5 million, of which about 1.9 million in vocational education, including EMI concomitant and subsequent courses. Most of enrollments in vocational education (58.8%) has been concentrated in the public network. Despite this expansion, the Federal Network accounts for only 3% of high school enrollment nationwide (INEP, 2020).

It should be noted that Goal 11 of the 2014-2024 National Education Plan (PNE) foresees an increase in enrollments in vocational education, reaching 5 million in 2024, with 50% of the offer in the public network.

**Table 2.** Enrollment in vocational education between 2009 and 2019

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>Brazil</b>	1,257,291	1,376,824	1,483,643	1,605,608	1,667,685	1,945,006	1,917,192	1,859,940	1,831,003	1,903,230	1,914,749
<b>Public network</b>	742,552	818,787	890,426	962,746	964,196	971,732	1,044,807	1,097,716	1,077,150	1,132,533	1,125,463
<b>Private network</b>	514,739	558,037	593,217	642,862	703,489	973,274	872,385	762,224	753,853	770,697	789,286

Source: INEP (2015, 2018, 2020).

The expansion of RFEPC policies guaranteed an increase of 34.3% in the offer of EMI between 2009 and 2019, but, according to Melo and Moura (2017), the pace decreased compared to the 2001-2013 period, because of the cuts in funding for education in 2015, with Constitutional Amendment No. 95/2016, which limited public spending for twenty years, stagnating investments in education. With this trend, it will not be possible to reach Goal 11 by 2024, especially because most of the investment in the area has been concentrated in the private sector (through PRONATEC).

### 2.1 Federal Institute of São Paulo

It is in this context we have the Federal Institute of São Paulo (IFSP), created in 2008, and previously known as Federal Center of Technological Education of São Paulo (CEFET-SP). This creation followed the expansion program observed in the country: from three centers to 36 *campuses*, all in full operation in 2019.

We observe that, to start the activities of the *campuses* that began with the expansion in the countryside of São Paulo, the option was creating concomitant and subsequent technical courses, since their implementation demands fewer resources and professionals. Following this same logic, the offer of EMI courses between 2012 and 2015 was based on a partnership between IFSP and the Secretariat of Education of the State of São Paulo (SEE-SP), under a collaborative agreement, being IFSP responsible for vocational education and the Secretariat, general education. From this experience, we may conclude that the proposed course resembled the concomitant and, thus, did not reach the main goal of IFs in offering integrated education from the perspective of polytechnic education (BRAZOROTTO, 2014).

Only in 2016 the offer of EMI courses on the *campuses* of the countryside began, with curriculum, professors, and resources from the IFSP itself. These courses were developed in 2015, aiming to meet the provisions of the legislation in force: the priority of EMI, based on the polytechnic education.



It should be noted that the vocational education developed in federal schools, especially those of high school level, has its quality recognized by the academic community and the population in general. According to Bandera (2016), in a research conducted with high school students at the São Paulo *campus* of IFSP, this recognition is mainly due to the qualification of the faculty, composed of professors with PhD and master's degree, the selection process of students through classifying and competitive exams, and the important positions of graduates in the labor market and in top universities.

According to the author, this explains why adolescents from families with incomes above two minimum wages and interested in moving up into the upper middle class or above are attracted by these schools – institutions such as IFSP represents this possibility, because “it is a decisive moment in the social and education game, where socially determined bets have determining consequences that delimit the horizon of possible futures” (BANDERA, 2016, p.810).

It is noteworthy that in IFSP the integrated courses have the lowest rates of school dropouts, around 6.6% in 2018, in comparison to an average of 21.9% in other technical courses (PLATAFORMA NILO PEÇANHA, 2019). This piece of information is corroborated by a study based on interviews with teachers of the institution, confirming the low dropout rates in EMI, which can be justified by the fact that the modality comprises the last year of compulsory basic education (BRAZOROTTO 2020).

### **3 SOCIOECONOMIC CHARACTERISTICS OF EMI STUDENTS: ANALYSIS OF AN IFSP *CAMPUS***

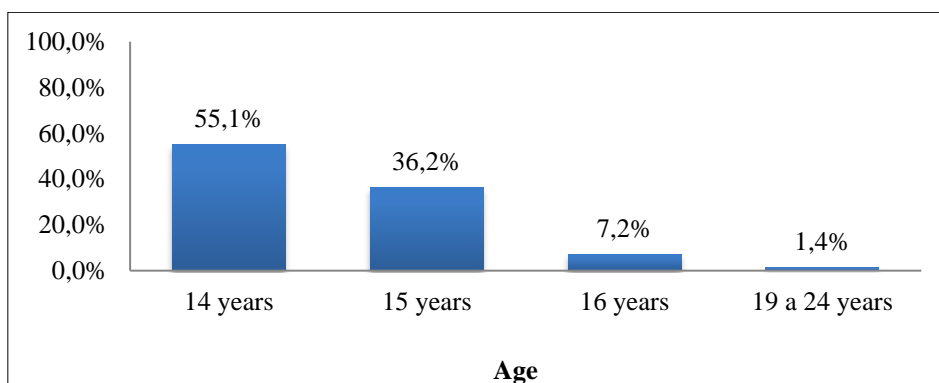
If the education policy for vocational courses changes, a maxim remains since its creation: the dualism that perpetuates the division of classes and is far from actions to overcome it.

Conducted in seven RFEPECT schools, six of them IFs, the quantitative research did a socioeconomic characterization of students to compare the purpose of the policy of including popular strata of society, historically excluded from quality public education. We collected 1,901 responses and focus the present analysis on an IFSP *campus*.

This *campus* began its activities in 2010, with the second phase of expansion of federal schools, in a municipality whose main economic activity has historically been industry and agriculture, but where recently the service sector jobs are predominating (IBGE, 2017).

Since 2016, the unit has been offering two courses for EMI: computer science and mechanics, with 80 places distributed equally between them. New students must pass a public selective process, 69 of them responded to our survey: 33 (computer science) and 36 mechanics students.

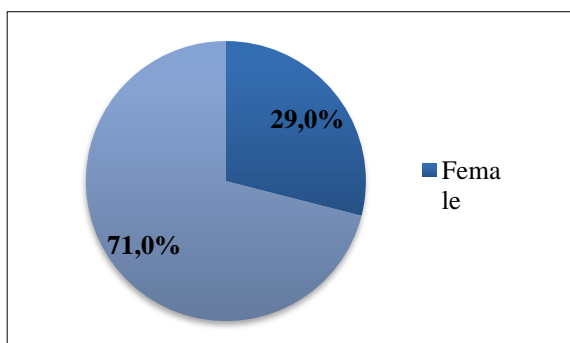
It is observed that the IF serves mainly students from the municipality itself (88%), and it is important to check whether the high percentage is due to local advertisement or there are transportation issues to receive students from other cities. Most of students have the expected age for high school: 91.3% are between 14 and 15 years old (Chart 1).



**Graph 1.** Age distribution of EMI students (in %)

Source: data collection elaborated by the authors.

The distribution by gender indicates a significant presence of male students (71%), which can be partially explained by the courses offered (Computer Science and Mechanics), which are preferred by men (CAMARGO, 2014).

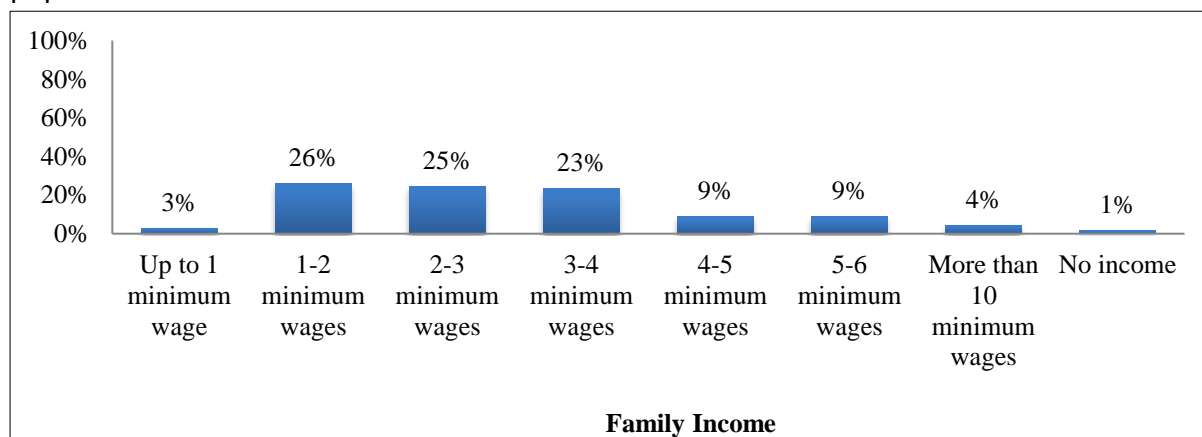


**Graph 2.** Gender distribution of EMI students (in %)

Source: Data collection by the authors.

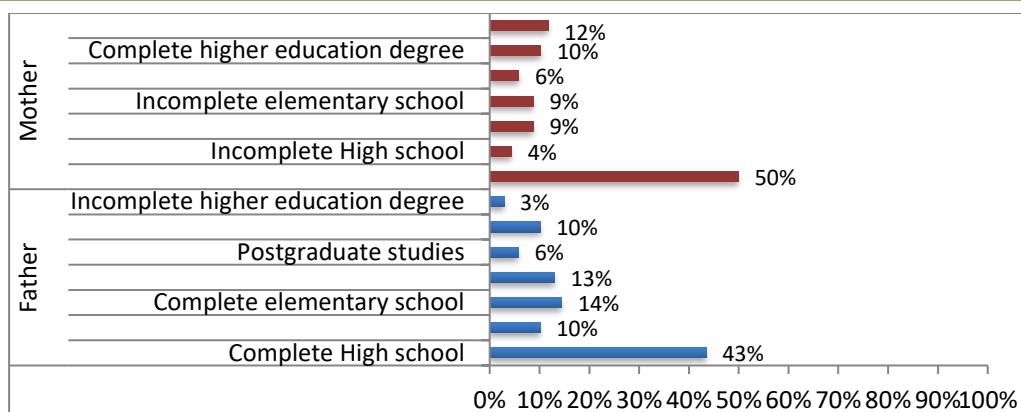
The issue of gender is an obstacle to be overcome by women in vocational training and for an egalitarian entry in the labor market, since socially constructed prejudices attribute to women “technical incompetence” for activities linked to science or technology (HIRATA, 2003, p.148). This supposed inaptitude derives from the female role in the sexual division of labor, intrinsically linked to domestic and family care activities. This type of work is not considered a producer of techniques, placing thus women on a lower plane.

We can state that these IF students come from families whose parents have higher schooling than the average of the Brazilian population (46.7%). Most fathers and mothers have completed high school (50% and 43.5% respectively), while the percentage among the Brazilian population with more than 25 years is 26.3%. However, the percentages found corroborate those collected by IBGE in the Southeastern region, where 53.6% of the population had



completed high school in 2018 (IBGE, 2019).

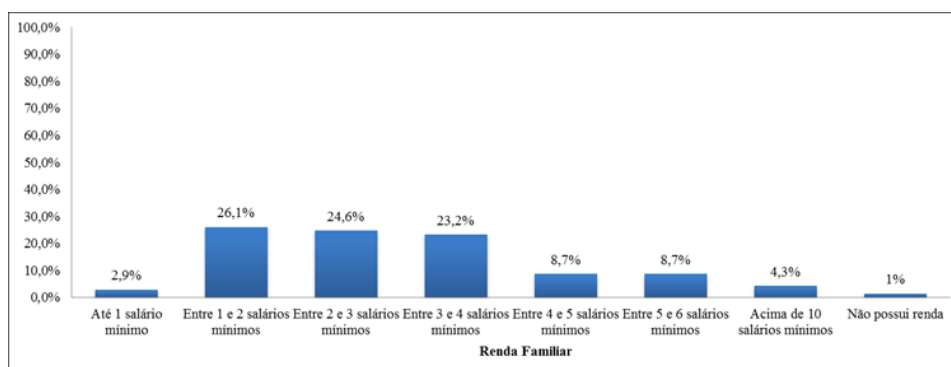
As for higher education, their parents and legal guardians are at levels equivalent to those of the Brazilian population (15.3%). Adding the numbers related to the answers regarding this schooling level to those who had postgraduate qualifications, 16.2% of mothers are in this schooling range and, slightly below, fathers, 15.9%. This number increases significantly if the percentages of incomplete higher education are added: 28% (mothers) and 18.8% (fathers), reaffirming historical data that indicate higher schooling for women (HIRATA, 2003).



**Graph 3.** Degree of education of parents of those enrolled in EMI (in %) Source: data collection elaborated by the authors.

The survey on the monthly income of these families indicates that just over a quarter (26.1%) had the same average of real household income of the Brazilian population: R\$ 1,373.00 (IBGE,2018). Only 3.9% of the families had income below a minimum wage (R\$ 937.00) or no income.

Thus, we found that most students, almost 70%, belong to families with monthly income above the national average, in the range between 2 and 4 minimum wages (47.8%). According to the policy, the IFs should primarily attend students from popular classes, in conditions of social vulnerability, defined by law No. 12,711/2012 as those with monthly income below one and a half minimum wages. In the case investigated, we observed that only a third of the students come from families with income of up to two minimum wages.



**Graph 4.** Family income of those enrolled in EMI Source: data collection elaborated by the authors.

The socioeconomic analysis of the students aimed to articulate other complementary aspects, among them, unemployment among families. The percentage is close to that of the lowest income levels: 20.3% of respondents said at least one family member was unemployed. In 2017, the unemployment rate in Brazil was 12.7%, the highest according to historical data from IBGE registered since 2012. In 2014, when the policies for vocational education and expansion of IFs were in full development, the average unemployment rate was 6.8% (IBGE, 2020).

Regarding affirmative policies, Law No. 12,711/2012 determines that at least 50% of EMI places, per period and course, are reserved for students from public schools. Among these, half should attend families in situations of social vulnerability and half, people who self-reported black, brown or indigenous ethnicity, and those with special needs, observing the proportion of these populations in the state, according to IBGE data (2020).

This survey found that 42% of IFSP students declared being benefited by quotas for public school: 5.3% (social quotas, low income) and 4.9% (racial). As for self-declaration of color, 64.6% of the sample identifies themselves as white, 5.1% black, 27.7% brown and 2.1% as yellow, representing the distribution in the state (BRAZOROTTO, 2020). We highlight that affirmative policies are an important advance for the democratization of federal institutions, especially for the black/brown population, in line with the IBGE report on racial inequality in the country (IBGE, 2019).

Another important element related to social class is the frequency of child labor. We found that 87% of IF students have never worked, and thus probably are fully dedicated to their education and are financially supported by their families. Around 10% said they were looking for the first job, and 2.9% are currently working in the industrial sector.

Most of the respondents live in their own and paid house (49.3%), followed by those who have their own house financed (24.6%). We assume that such data may be the result of social housing programs, such as *Minha Casa, Minha Vida* (my house, my life) launched in 2009 by the Federal Government. Since 2017, the program has been supporting a housing financing system to families with monthly income of up to R\$ 7,000.00.

Still concerning this topic, 14.5% live in a house given by a friend or relative, and another 11.6% live in a rented house (Table 3). In addition, 100% of those enrolled in the integrated courses live in an urban region, and most (58.2%) have 4 to 5 rooms in the household.

According to the Continuous National Household Sample Survey (IBGE, 2020), 68.2% of the Brazilian population live in their own paid home, while 5.9% have their own home still in payment; 17.5% pay rent; 8.2% live in a granted residence and 0.2% under other conditions.

**Chart 3.** Type of housing of those enrolled in EMI courses

Type of House	percent
Own (paid)	49.3%
Own (funded, still not paid)	24.6%
Granted (by friend or relative)	14.5%
Rented	11.6%
<b>Total</b>	<b>100.0%</b>

Source: Data collection by the authors.

Data from this survey indicate that 98.6% of students have internet access at home and, of these, 65.2% use cell phones as their main means of access. These results are above the national average, which is 74.9%, of which 43.3% have the cell phone as the only device for internet access (IBGE, 2018).

As for the means of transport, we found that the majority (72.5%) of those enrolled go to school by bus, followed by those who take a ride with friends (11.6%), and 6% drive their own car. A small proportion of respondents go on foot or by bike (4.3% each) or motorcycle (1.4%).

Approximately half of those enrolled (49.3%) have a private health plan, and 47.8% use the Unified Health System (SUS); only 2.9% use private health services. According to the National Health Agency (ANS), in Brazil, there are 47,403,025 beneficiaries of health plans, with a national coverage rate of 24.44%, which shows that most of the population uses SUS. In the state of São Paulo, however, the coverage rate of private health plans is 38.8% (ANS, [s.d.]), which explains, in part, the option of most families surveyed

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## 4 FINAL CONSIDERATIONS

The historical recovery of vocational education allows us to affirm that this modality has been marked since slavery by the devaluation of manual labor and has followed the tradition of being attributed to abandoned and poor children (BRASIL, 1909) as a measure to avoid marginality.

This trend is changed by the selection established for federal schools in 1937, but it has been strengthened by SENAI that, given the Fordist principles to control workers not only in the field of production but also in the reproductive sphere, promoting an assistentialist approach in relation to the population's health care and schooling (CUNHA, 2000b).

The education policy of IFs elects as a target audience the socially "unfavored", to democratize the access to technical education, which would take place mainly through EMI, and guarantee quality education to the population that historically had this, and other rights denied (Brazil, 2010, p.21). However, our socioeconomic analysis of the participants in these courses at an IFSP *campus* in the countryside of São Paulo reveals that it primarily attracts those with incomes between 2 and 4 minimum wages (47.8%), even considering the participants benefited by quotas.

This survey allows us to state that the students of this Federal Institute in the countryside of São Paulo are young, from 14 to 18 years old, mostly male, have never worked professionally and live in their own paid or under financing home.

They come from families with schooling level above the average of the Brazilian population: while practically a third of this population over 25 years have complete high school, half of the parents of the IF students completed compulsory education.

We observed that, in general, mothers (50%) and fathers (43.5%) had complete high school, followed by those who have mothers with unfinished higher education (11.8%) and fathers with complete elementary (14.5%). The family income of the students is from 2 to 4 minimum wages. Most (73.9%) live in their own homes and 49.3% have private health plan.

In this context, the advances represented by the creation of the Federal Institutes, an expansion of the federal network, stand out, as well as the implementation of affirmative policies, which show positive results towards racial democracy.

We note that, to include populations historically deprived of quality education, it is necessary to expand the investment in this modality of teaching and improve the policies of admission, implementing more democratic forms of access beyond the entrance exam and forms of permanence by supporting socially vulnerable students based on official documents

and laws established by education policies for Federal Institutes.

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