SEVEN
publicações acadêmicas

Higher education and professional and technological education in Brazil

Crossref doi
https://doi.org/10.56238/ptoketheeducati-048

Sylvia Cristina de Azevedo Vitti
Ph.D. in Education
Professor at the Faculty of Technology of Piracicaba – FATEP/SP

ABSTRACT
This article presents an overview of the expansion of higher education in Brazil, the right to education with the Federal Constitution of 1988 and the social rights guaranteed by it. The importance of the LDB/1996 for the reformulation and expansion of education in the country, including higher education and Professional and Technological Education (EPT) in the Brazilian scenario, is highlighted, instituting the Higher Technology Courses (CSTs) and their guiding principles, the verticalization and revitalization of Professional Education. The LDB/1996 is contextualized in the political-economic scenario of the 90s, in the context of the reform of the State and under the influence of international financial organizations. We sought to clarify how the LDB incorporated recommendations from these organizations, which had repercussions on the restructuring of Brazilian higher education and resulted in the expansion of higher education institutions, emphasizing their privatization, diversification and flexibility. It presents an overview of the origin and development of Professional Education in Brazil and the various reforms carried out in education. CSTs are presented in the context of higher education in its revitalization process. The history and development of EPT in the state of São Paulo, the creation of the Paula Souza State Center for Technological Education (CEETEPS), the Faculties of Technology and their CSTs are presented.

Keywords: Professional and Technological Education, Higher Technology Courses, Higher Education.

1 INTRODUCTION

1.1 BRAZILIAN HIGHER EDUCATION: A BRIEF OVERVIEW

The educational system of a country plays a strategic role in its socioeconomic development, as it influences the dynamics of the processes of production and diffusion of science, culture, technological development and innovation of the nation. It is a key piece in the task of qualifying the human resources that are and will be responsible for the development and modernization of the nation (SOUZA, 2012).

In Brazil, the educational system has an elitist history and for a long time favored the privileged classes, excluding the economically disadvantaged or the underprivileged for reasons of ethnicity, social class and gender (GISI and PEGORINI, 2016; Detregiachi Fo., 2012). However, in 1988, in the period of redemocratization of the country, after the end of the military regime, the new Federal Constitution was drafted, the Citizen Constitution, anchored in democracy, which recognizes and ensures the social rights of citizens. According to Silva (2008), the Magna Carta of 1988 established a democratic regime based on objectives of promoting the principle of equality through the realization

of social rights and the universalization of services to be offered to society, such as security, health, social security, social assistance, culture and education. According to the same author, the foundation of the Democratic State of Law consists in the democratization of social benefits and it is expected that such legal systems will be carried out in practice.

One of the social rights guaranteed by the Federal Constitution is that of education, enshrined in article 6 and article 205, as being "the right of all and the duty of the State and the family", that is, as a shared responsibility of the State with civil society, thus reaffirming the right to education in the country (BRASIL, 1988, n.p.).

The right to education appears in more detail in Article 208 of the Constitution, which speaks of the guarantees, gratuity and obligation of education in the country from then on. Souza (2012) reminds us, however, that "the right to education in Brazil still encounters obstacles to its materialization" (SOUZA, 2012, p. 101). In Brazil, only in 2009 occurred the universalization of Basic Education, elementary and high school, for students from 4 to 17 years of age, becoming free and compulsory with the promulgation of Constitutional Amendment No. 59/2009, and its offer was also assured to those who did not have access to it at the appropriate age. With the universalization of high school and a greater number of graduates of this level there was a greater demand for places in higher education and an increase in pressure for the expansion of vacancies at this level of education (FIALA, 2016).

However, with regard to higher education, specifically, the situation is more complex, because it is linked to the effort and merit of the citizens themselves and is not mandatory. With regard to higher education, the Federal Constitution makes this explicit in article 208, item V: "access to the highest levels of education, research and artistic creation, according to the capacity of each one" (BRASIL, 1988, n.p.).

The Brazilian State recognizes, however, in the Law of Guidelines and Bases of national education, Law No. 9,394/1996 of 12/20/1996 (promulgated in the government of Fernando Henrique Cardoso, marked by neoliberal tendencies) the importance of higher education for the development of the country. Chapter IV of this law, which deals specifically with Higher Education, provides for its purposes, quality of teaching, undergraduate and graduate courses and programs, as well as the expansion and diversification of higher education institutions.

The purposes of Higher Education are presented in Article 43 of the LDB/1996 in its various items:

> I – to stimulate cultural creation and the development of the scientific spirit and reflective thinking;
> II – to train graduates in the different areas of knowledge, able to enter professional sectors and to participate in the development of Brazilian society, and to collaborate in their continuous training.

> III – to encourage the work of research and scientific investigation, aiming at the development of science and technology and the creation and diffusion of culture, and thus develop the understanding of man and the environment in which he lives;
> IV – to promote the dissemination of cultural, scientific and technical knowledge that constitute the patrimony of humanity and to communicate knowledge through teaching, publications or other forms of communication;
> V – to arouse the permanent desire for cultural and professional improvement and to enable the corresponding implementation, integrating the knowledge that is being acquired in an intellectual structure that systematizes the knowledge of each generation;
> VI – to stimulate knowledge of the problems of the present world, in particular the national and regional ones, to provide specialized services to the community and to establish with it a relationship of reciprocity;
> VII – promote the extension, open to the participation of the population, aiming at the diffusion of the achievements and benefits resulting from the cultural creation and scientific research generated in the institution (BRASIL, 1996, n.p.).

It is important to clarify and emphasize, however, the historical-political and economic context of the 1990s, of neoliberal content, which sought to minimize the performance of the State in relation to social policies as a way to resume economic development through the reform of the State. This logic suggests the downsizing of the state machine, as well as the privatization of goods and services, effecting the transfer of the production of goods and services to the private initiative (DOURADO, 2002). The thesis is that of the minimal State, since it is understood that the market is the most efficient mechanism of resource allocation and, in this way, the State must be emptied in size, role and functions. This ideology gained notoriety in the early 70s, with the crisis of the economic model in which high inflation rates and low growth rates combined. The first country to adopt the neoliberal agenda was England, in 1979, which was followed by other advanced countries in the 80s (CARVALHO, 2007). In line with the neoliberal premises, Bresser Pereira - Minister of Federal Administration and State Reform of Brazil, from 1995 to 1998 during the government of President Fernando Henrique Cardoso (FHC) - advocated changes in the organization and management of the State (PEREIRA, 1998). In this project, health, education, culture and scientific research made up the sector of non-exclusive services, provided by the State, but which could also be offered by the private sector and the non-governmental sector. Thus, changes in the educational field were implemented with regard to the legal organization of Higher Education Institutions (HEIs) and new formats of regulation/management and privatization of educational institutions (DOURADO, 2002).

In the political-economic scenario of the 90s, FHC's management, of neoliberal tendencies, reoriented public policies, changing the patterns of state intervention and placing mainly educational policies in tune with multilateral organizations, understood as entities created by the main nations of the globe with the objective of promoting the full development of the various areas of human activity (CARVALHO, 2007).

According to Sguissardi:

> In the shadow of the recommendations of the 1994 World Bank document, *Higher Education: the lessons of experience*, which proposed, among other things, much greater institutional

> differentiation and diversification of sources of education maintenance, including student payment of public HEIs; which considered the research university *inadequate for developing countries and in its place proposed the adoption of the* teaching university (no research); which recommended that the authorities be "attentive to market signals", the Law of Guidelines and Bases of National Education (LDBEN) was approved in December 1996. This law, approved as a kind of "legal umbrella", allowed the edition of several normalizing decrees imbued with the spirit of these recommendations (SGUISSARDI, 2008, p. 1000).

In this context, the LDB/1996 was promulgated, a period in which Brazil, the spectrum of social and economic policies were under the neoliberal agenda, which influenced the Brazilian educational policy and gave specificity to this era in the history of higher education (CARVALHO, 2007). The guidelines for higher education that are presented through the LDB/1996 are related to the process of reform of the State in force at the time and linked to world organizations (DOURADO, 2002).

Scholars of Brazilian education, such as Carvalho (2007), Dourado (2002) and Sguissardi (2006), among others, have written extensively about the policies for higher education in Brazil in the 90s in the context of state reform and under the influence of international or multilateral financial organizations. These authors analyze the university reform of this decade, revealing external influences and recommendations coming from these international organizations - International Bank for Reconstruction and Development (IBRD) and International Monetary Fund (IMF) - which were incorporated by the LDB/1996 and had repercussions on the restructuring of Brazilian higher education. Among the proposals for financial and administrative aid from the IBRD is the need for reform in the country's educational policy, in order to give rationality and efficiency to the system, with the introduction of new concepts, such as: evaluation, university autonomy, diversification, flexibilization and privatization (CARVALHO, 2007).

Sguissardi points out that:

> The integration of the country into the world economy is emphasized by emphasizing the new role attributed to the market in the allocation of resources and reducing the functions of the State, especially when it is thought of as a provider of social services, including education. The recommended measures, as we know, were: combating *the public deficit*, fiscal adjustment, privatization, price release/adjustment, deregulation of the financial sector, commercial release, incentive to foreign investments, reform of the social security/social security system and reform, deregulation and flexibilization of labor relations (SGUISSARDI, 2006, p. 1026).

This allows us to understand the changes that came into force in higher education since the elaboration and implementation of the LDB/1996 (DOURADO, 2002). Dourado (2002) points out that from the guidelines of the World Bank it is possible to deduce the prescription of educational policies guided by the logic of rationalization, which would accompany the logic of the economic field. Already in the 80s, with the beginning of the crisis and the indebtedness of the country, there was a transformation in the role played by the World Bank and multilateral financing organizations. The World Bank went from inducing investments to guardian of the interests of large international creditors and, in this way, became responsible for ensuring the payment of the external debt and for restructuring

the economic opening, mainly of Latin American economies according to the current requirements of globalized capital (SOARES, 1996).

The same authors previously mentioned (CARVALHO, 2007; Golden, 2002; SGUISSARDI, 2006) present criticisms of the guidelines established by the LDB/1996 for higher education, denouncing the influences of international organizations on policies for national education. In his analysis of the educational policies for higher education implemented in Brazil in the 90s, of the twentieth century, Dourado (2002) highlights how much such policies were influenced by sociopolitical options and interests articulated to the changes in the contemporary scenario, this marked by historical determinants arising from the ongoing neoliberal tendencies, which are configured, as already mentioned, by minimizing the role of the State (DOURADO, 2002). This author denounces and criticizes the predominance of the privatization character in the policies of expansion of higher education in this period. Sguissardi (2008) points out that the recommendations of multilateral organizations supported the opening *of the higher education educational market* in Brazil to private initiative or *free business initiative,* which would attribute to higher education many of the characteristics of a private good. The increase in the number of private enrollments had a great rise in the FHC government. However, this alternative exalted by the World Bank as a solution to meet the expansion in the supply of vacancies, encountered obstacles such as the fall in the purchasing power of the population (CARVALHO, 2007).

According to Golden:

> [...] this expansionist process was deliberately driven by official policies, having been embodied by nature and predominantly private character, such as the creation of new HEIs, the creation of new courses and organizational formats, restructuring of HEIs, among others. Such policies have resulted in an intense process of massification and privatization of higher education in Brazil, characterized by the precariousness and privatization of the scientific agenda, neglecting the social role of higher education as a space for investigation, discussion and dissemination of projects and models of organization of social life, having as its north the guarantee of social rights (DOURADO, 2002, p. 246).

Also according to the same author:

> Higher education in Brazil is emblematic to the extent that it is restructured, breaking with the principle of inseparability between teaching, research and extension, through deliberate actions in favor of a growing expansionist process, guided by policies that induce institutional diversification and differentiation, which, in the Brazilian case, has meant an expansion guided by hegemonically, by the lightening of training and the privatization of this level of education (DOURADO, 2002, p. 245).

Oliveira and Catani (2002), highlight that in the LDB/1996, the university model based on teaching, research and extension was not maintained as a model of expansion for higher education, being replaced by a diversified and differentiated system, in line with the observations of Dourado

(2002), already previously presented, in order to meet the recommendations of the IBRD, diversification and flexibilization of higher education institutions.

Rosa, relying on Sguissardi (2009), points out that:

> [...] the logic of expansion did not allow the continuity of the link between teaching, research and extension, a model that began to be replaced by others, with a view to expanding the chances of access to undergraduate courses (ROSA, 2014, p.242).

Article 45 of the LDB/1996 deals with the expansion of higher education and the diversification of higher education institutions in the country:

> Art. 45: Higher education will be taught in higher education institutions, public or private, with varying degrees of scope or specialization (BRASIL, 1996, n.p.).

Article 48, in its 1st paragraph, states that:

> Art.48: The diplomas of recognized higher education courses, when registered, will have national validity as proof of the training received by their holder (BRASIL, 1996, n.p.).

It should also be noted that in the context of the reform and expansion of higher education engendered and made possible by the LDB/1996, there was a revaluation of Professional and Technological Education in the country, so that this LDB is considered the legal framework in the history and evolution of this modality of education. Chapter III establishes the guiding principles and verticalization of Professional Education, as well as the Higher Technology Courses in Brazil. The higher technology courses are part of the strategies to sustain a policy of expansion of the higher level of the Brazilian education system, a policy that began in the FHC government and deepened in the Lula government (SOUZA, 2012).

In summary, based on what was established in the LDB/1996, a process of reformulation of the higher education system in Brazil was triggered, aiming at the expansion and democratization of higher education, which was made possible by the diversification and flexibilization of higher education institutions. The expansion of the system resulted in the expansion of the number of higher education institutions, mainly private, and the consequent increase in enrollment, resulting from the increase and accreditation of new institutions and the opening of new courses. This growth occurred mainly in private institutions, although there has also been an expansion in the public school system (ROSA, 2014).

Then, other educational institutions, colleges and university centers emerged, characterized by institutional diversification and curricular flexibility, necessary for the adaptation of these institutions to the demands of the market.

Over the last few years, there has been a significant increase in the number of HEIs in Brazil, as well as a large increase in the number of enrollments registered in these institutions. According to the 2019 Brazilian Higher Education Census, prepared by the Anísio Teixeira National Institute of Educational Studies (INEP) and released by the MEC, there are 2608 HEIs in the country, between public and private, with a predominance in number of private institutions (BRASIL, 2020).

According to the statistical notes of the 2019 Census (BRASIL, 2020), of the 2608 institutions of higher education existing in Brazil currently, 88.4% are private and 11.6% are public. Of the total HEIs already mentioned (2608), 79.65% are colleges. Among the private HEIs, colleges predominate, which correspond to 83.8%.

Also according to the 2019 Census, of the federal HEIs, 60.0% correspond to universities, 36.5% to the Federal Institutes of Education, Science and Technology (IFs) and Federal Centers of Technological Education (CEFETs).

According to the 2019 Census (BRAZIL, 2020), between 2009 and 2019 the number of enrollments in HEIs increased by 43.7%, with an average annual growth of 3.6%. In 2019, a total of 8.6 million enrollments were recorded, 1.8% higher than in 2018. In 2019, more than 16.4 million vacancies were offered in HEIs, of which 837,000 were in the public network and more than 15 million in the private network.

According to Census/2019 data, enrollment in higher education increased by 43.7% between 2009 and 2019, with an average annual growth of 3.6%. Compared to 2018, the positive change was 1.8%. In 2019 the number of enrollments continued to grow, reaching 8.6 million.

According to the 2019 Census, 3.6 million students entered higher education courses, of which 84.6% in private institutions. In 2019, the number of entrants had a growth of 5.4% compared to 2018. The census charges that the private network continues its expansion. In 2019, the number of tickets increased by 8.7%. In the period between 2009 and 2019, the private network grew 87.1% and the public network increased 32.4% in the same period.

The Secretariat of Professional and Technological Education (SETEC / MEC) has developed actions to promote, expand and consolidate a culture of professional and technological training within the institutions, networks and educational systems of the country, in order to offer a professional and technological education of quality, public and / or private, through partnership with private institutions throughout the national territory, in order to reach and benefit millions of young Brazilians and offer them training opportunities (BRASIL, 2018). In this context, the Higher Technological Courses (CSTs) are inserted, expanding in the national territory.

According to the 2019 Census, bachelor's degree courses continue to concentrate the majority of higher education freshmen (57.1%), followed by technological courses (22.7%) and undergraduate courses (20.2%). Between 2018 and 2019 there was an increase in the number of entrants to the

bachelor's degree (3.1%). However, the CSTs showed the greatest variation, 14.1%. Undergraduate courses recorded a 3.5% increase. In the period from 2009 to 2019, the number of entrants to the CSTs registered the highest growth in percentage terms, 132.5%, a very expressive percentage, according to the INEP Statistical Notes, 2019 (BRASIL, 2020b). Regarding the number of enrollments, the Census shows that bachelor's degree courses predominate in national higher education, participating with 66% of the total enrollment.

The CSTs showed the highest growth (11.5%) in relation to bachelor's and bachelor's degree courses in 2019, when compared to 2018 (BRASIL, 2020).

However, in recent decades, in the era of globalization (defined by sociologists Martin Albrow and Elizabeth King (1990) as the era that concerns all the processes through which the peoples of the planet are incorporated into a single and global world society) modern Brazilian society has been undergoing major transformations with recent technological and communication developments that interconnect the different countries and societies on a global scale, "shortening borders", expanding contact with different cultures, facilitating access to knowledge and information before difficult access and increasingly valuing knowledge. That is why we speak of a 'knowledge society'. This has mobilized young Brazilians for the importance of higher education.

At the same time, the federal government knows that Brazil occupies an underprivileged position with regard to the gross enrollment rate of higher education compared to other countries, including Latin American countries such as Chile and Argentina, as Souza (2012) reports. According to this author, according to UNESCO data, Brazil is one of the countries that have one of the lowest rates of higher education. In this context, the offer of Distance Education (EaD) was included in Art. 80 of the LDB/1996, aiming at its implementation in Brazil as a means of expanding access to education at all levels and modalities of education, expanding the access of students to higher education and continuing education.

> Art. 80. The Government will encourage the development and dissemination of distance learning programs, at all levels and modalities of education, and continuing education.
>
> §1 Distance education, organized with special opening and regime, will be offered by institutions specifically accredited by the Union (BRASIL, 1996, n.p.).

Currently, undergraduate, specialization and graduate courses and programs are quite popular and widespread in Brazil. According to the statistical data of the 2019 Higher Education Census, these present an evolution of the number of distance education undergraduate courses in Brazil, from 2000 to 2019.

The distance learning modality of higher education is offered in both public and private HEIs, being predominant in public institutions. The number of vacancies for undergraduate courses offered in the distance modality already exceeds the number of vacancies available for face-to-face courses,

although the number of courses, enrollments, freshmen and graduates is still higher in the face-to-face modality.

As already explained, in recent decades there have been efforts to enable the expansion and democratization of higher education, through the expansion, flexibility and diversification of institutions and higher education courses, with a view to expanding the contingent of Brazilians with higher education and also overcoming the gap in this regard in relation to other Latin American countries.

1.2 CONSIDERATIONS ON HIGHER EDUCATION IN THE XXI CENTURY

The current society goes through constant changes and the education sector, as well as the other social sectors, are updating themselves in order to meet the various demands. As higher education advances, society is benefited, for example, by public policies that favor expansion and access to graduation. In this way, the documents that originate from national and international conferences and meetings focused on this theme contribute positively to the elaboration of such policies, since they support governmental decisions (ROSA, 2014).

At the end of the 90s, in 1998, the World Conference on Higher Education was promoted by UNESCO and held in Paris, France. From this conference originated the *World Declaration on Higher Education in the XXI Century: Vision and Action*, which recognizes the great demand for higher education and the diversification of the system. This statement points out the relevance of this level of education for socio-cultural and socioeconomic development and for the construction of the future, emphasizing that the new generations must be well prepared, with ideal skills and knowledge, to be able to act appropriately. This document highlights the challenges and difficulties inherent in the expansion and development of higher education, highlighting the following issues: financing; equal conditions of entry and permanence in studies; development of skills and competencies; quality of teaching, research and extension; employability of graduates of the courses; access to the benefits of international cooperation (ROSA, 2014).

The UNESCO Declaration points to the fact that, although there has already been a significant advance in the process of expansion of higher education worldwide in the second half of the twentieth century, there is still a great disparity in the resources allocated to higher education, research and educational opportunities, both in developed and developing countries (UNESCO, 1998).

According to UNESCO:

> Without higher education and adequate research institutions that form the critical mass of qualified and educated people, no country can ensure genuine and sustainable endogenous development or reduce the disparity that separates poor and developing countries from rich countries (UNESCO, 1998, n.p.).

The Declaration emphasizes that the essential missions and values of higher education must be strengthened and expanded, as well as stresses the objective of this level of education to contribute to the sustainable development and general improvement of society. Still, according to the document, higher education is presented as a driving factor for the development of individuals and nations, contributing to their socioeconomic development. There is a tendency to expand the opportunities for access and participation in higher education of socially discredited layers of the population.

It is observed that at the end of the twentieth century and the beginning of the twenty-first century there was an engagement of the social instances in Brazil and abroad with regard to the realization of events, conferences and elaboration of guiding documents of educational policies, in its various levels. Under the influence of these events, Brazil recognized the problems related to higher education in the country and elaborated the first National Education Plan (PNE) in 2001, affirming the need to create public educational policies for the expansion, renewal and development of national higher education. This document is prepared every ten years and determines the guidelines, goals and strategies for education in our country.

The current PNE was prepared in 2014, established by Law No. 13,005/2014 and created to be in force from 2014 to 2024. It aims at the expansion, universalization and improvement of education and its quality at its various levels in the country. The current PNE (BRASIL, 2015) has 20 goals, among which the following stand out, related to higher education in Brazil:

> Goal 12 - Raise the gross enrollment rate in higher education to 50% (fifty percent) and the net rate to 33% (thirty-three percent) of the population from 18 (eighteen) to 24 (twenty-four) years, ensuring the quality of supply and expansion to at least 40% (forty percent) of new enrollments, in the public segment (BRAZIL, 2015, p. 207).
>
> Goal 13 - Raise the quality of higher education and increase the proportion of masters and doctors of the teaching staff in effective exercise in the whole system of higher education to 75% (seventy-five percent), being, of the total, at least 35% (thirty-five percent) doctors (BRASIL, 2015, p. 225).
>
> Goal 14 - Gradually increase the number of enrollments of stricto sensu graduate programs in order to reach the annual degree of 60 thousand masters and 25 thousand doctors (BRASIL, 2015, p. 241).

The current Public Educational Policies for higher education were created to favor the access and permanence of students and also to favor the inclusion of historically underprivileged groups and traditionally excluded from this level of education.

In the previous items, the importance of Higher Education for the development of the country was highlighted. The historical-political and economic context of the 90s was highlighted, which resulted in the introduction of new concepts for this level of education, such as diversification, flexibility and privatization of HEIs, accreditation of new institutions and opening of new courses. The changes that came into force in Higher Education from the elaboration and implementation of the

LDB/1996 and the increase in the number of enrollments, especially in private HEIs, were commented. The university model was highlighted, which remained as the expansion model, which is based on teaching and not on research and extension.

The revaluation of the EPT in the context of the reform and expansion of Higher Education was highlighted, and the insertion of the CSTs in this context was highlighted. These courses contribute to the expansion of Brazilian Higher Education, initiated by the FHC government in the 90s, which contributes to raising the gross enrollment rate in higher education according to the goal established by the current PNE. Due to its relevance in the present Brazilian educational scenario, the following is a history about the origin and development of the Brazilian EPT, as well as its historical-political contextualization.

1.3 PROFESSIONAL AND TECHNOLOGICAL EDUCATION IN BRAZIL: ORIGIN, DEVELOPMENT AND HISTORICAL-POLITICAL CONTEXTUALIZATION

It is considered that the beginning of Professional Education in the country officially occurred in 1909 with the creation of 19 Schools of Artificer Apprentices by President Nilo Peçanha, in different federative units and destined to professional education, primary and free, through Decree No. 7,566/1909 (BRAZIL, 2009).

In 2009 was celebrated the centenary of the Federal Network of Professional, Scientific and Technological Education, which consists of a set of educational institutions distributed throughout the national territory. Its creation by Law No. 11,892/2008 constituted a milestone in the expansion, internalization and diversification of Professional and Technological Education in the country (BRASIL, 2009).

The origins of Professional Education in Brazil, however, date back to the times of colonization, when the teaching of crafts was directed to indigenous people and slaves (BRASIL, 2009).

With the progress of the colony and the advent of gold mines in Minas Gerais, the Foundry Houses were created, which offered a more specialized education, aimed at the children of white men, employees of the House itself. During this period, the Craft Learning Centers were created in the Arsenals of the Brazilian Navy, recruiting people interested in learning a trade and who had some condition to produce.

Then, from 1785, came a period of stagnation of technological development in Brazil, due to the prohibition of the Royal Crown of Portugal regarding the creation of factories in the country. From the 1800s there are records of teaching manufacturing trades aimed at the less privileged layers of Brazilian society, offering the learning of crafts of typography, bookbinding, tailoring, turning, carpentry, shoemaking, among others.

With the coming of the Portuguese royal family in 1808 was created the College of Factories by D. João VI, considered the first establishment installed by the public power and directed to the education of artists and apprentices.

In 1889, at the end of the imperial period and after the abolition of slavery, there is a record of 636 factories installed in the country, with about 54 thousand workers. Later, already in the period of the republic, in 1906, Nilo Peçanha, then governor of Rio de Janeiro, created in his state, four professional schools for the teaching of crafts and agricultural learning. The year 1906 was marked by the consolidation of technical-industrial education in Brazil and it was recorded that the President of the Republic Afonso Pena, in his inaugural speech on November 15, 1906, declared that the creation and multiplication of institutes of technical and professional education could greatly contribute to the progress of industries, providing them with learned and skilful masters and workers. In July 1909, having died Afonso Pena, the presidency of Brazil was assumed by Nilo Peçanha (BRAZIL, 2009).

In 1927, the National Congress approved the compulsory provision of vocational education in the country. In November 1930 the Ministry of Education and Public Health was created, which structured the Inspectorate of Technical Vocational Education, which began to supervise the Schools of Artificer Apprentices. In 1934, this province was transformed into the Superintendence of Vocational Education. The 1930s were marked by the expansion of industrial education, which was driven by a policy of creating new schools and introducing new specializations into existing schools.

The Brazilian Constitution of 1937 dealt specifically with technical, professional and industrial education, determining in its article 129:

> To children and youth, who lack the resources necessary for education in private institutions, it is the duty of the Nation, the States and the Municipalities to ensure, through the foundation of public educational institutions in all their degrees, the possibility of receiving an education appropriate to their faculties, aptitudes and vocational tendencies.
>
> Vocational pre-vocational education for the less favoured classes is, in the field of education, the first duty of the State. It is responsible for carrying out this duty by founding institutes of vocational education and subsidizing those initiated by States, Municipalities and private and professional individuals or associations.
>
> It is the duty of industries and economic unions to create, in the sphere of their specialty, schools of apprentices, intended for the children of their workers or their associates. The law will regulate the fulfillment of this duty and the powers that will fall to the State over these schools, as well as the aids, facilities and subsidies to be granted to them by the public power (BRASIL, 1937, n.p.).

Later, in 1937, the Schools of Artificer Apprentices were transformed into Professional Lyceums, intended for the vocational education of all branches and degrees.

In the 1940s, education was marked by several reforms and in 1942 the Industrial and Technical Schools were created, which offered vocational training at a level equivalent to that of secondary

school and students graduated in technical courses were allowed to enter higher education in an area equivalent to that of their training.

The period of the government of Juscelino Kubitschek, from 1956 to 1961, was marked by great industrial development and education was contemplated with 3.4% of the total of the massive investments foreseen by the government's Plan of Goals, aiming at the training of professionals oriented to the development goals of the country. In 1959, the Industrial and Technical Schools were transformed into the Federal Technical Schools, intensifying the training of technicians, considered indispensable labor in the face of the acceleration of the industrialization process of the country.

In the 1960s there were several changes in the organization of education in the country, encompassing high school and professional education. At that time, of great expansion of the economy and the industrial park in the country, it was proposed the creation of Short Term Engineering Courses, called Operation Engineering, with three years of duration and intended to meet the industrial demand, especially the automobile industry, due to the lack of professionals focused on this sector. However, this modality of Operation Engineering generated many problems related to its nomenclature with the Engineering Councils and Class Associations. Subsequently, in 1968, in the context of the University Reform, these courses ended up being extinguished and the federal government created a working group to study the implementation of the Technology Courses, succeeding the Operation Engineering courses and lasting two years (SOUZA, 2012).

In 1969 was implemented in the Faculty of Technology of Bauru, state of São Paulo, the first technology course in the area of civil construction. That same year, the State Center for Technological Education of São Paulo was created, which, in 1973, was renamed the Paula Souza Technological Education Center (CEETEPS). The purpose of the Centre was to develop technological education and provide technology courses for the training of technologists. The creation of these courses was inspired by positive experiences with this professional training in European countries, such as Germany, France and England, and also in the United States. At that time, of the states of the federation, it was in the state of São Paulo that the CSTs had greater penetration, mainly due to the performance of the Paula Souza Center (SOUZA, 2012).

In 1978, three Federal Technical Schools - from Paraná, Minas Gerais and Rio de Janeiro - were transformed into Federal Centers of Technological Education - CEFETs and this change gave the institutions the attribution of training technologists.

The 1980s, a time of redemocratization of the country, was marked by the drafting of the new Federal Constitution of 1988, which guarantees the right to education and training to all citizens in terms of equality.

In 1994, at the end of the Itamar Franco government, the National System of Technological Education was instituted and the Federal Technical Schools and the Federal Agrotechnical Schools of

the country, in general, were transformed into Federal Centers of Technological Education - CEFETs, according to criteria established by the Ministry of Education, which was effected through Law No. 8,948/1994 (BRAZIL, 2009).

In the following years, according to Ramos (2014), the government of Fernando Henrique Cardoso (1995 - 2003), was marked by neoliberal ideology and brought new trends to the country's professional education policy. The government's proposal for Education was the idea of the urgent need to improve and change the quality of the school in order to train workers capable of adapting to the technological innovations of the labor market.

According to Ramos:

> Based on formulations that seem to be in line with the guidelines of international agencies, such as the IDB (Inter-American Development Bank) and IBRD (International Bank for Reconstruction and Development), education was conceived as a requirement for technological development and citizenship, the latter being a simple additional element to the process. In the same way, professional education was conceived as one of the strategies to solve the problem of the qualification of the Brazilian workforce (RAMOS, 2014, p. 52).

According to the author cited above, this was a time marked by the ideology of employability that:

> [...] spread the idea that the more skilled the worker, the greater his chances of entering and/or remaining in the labor market. Seduced by these ideologies, the working class began to mobilize for the improvement of its schooling standards. The return to school became one of the characteristics of these years (RAMOS, 2014, p. 57).

According to Ramos (2014), this was a period in which there was a search for qualification or professional training courses, driven by the National Plan for Professional Training - PLANFOR, by the Ministry of Labor, in 1995, predominantly developed by civil society institutions. This era was also marked by the expansion of private initiative in the area of education, with the adhesion of civil society to the Program for the Expansion of Professional Education - PROEP, of the Ministry of Education, and data from the 2003 Census show that the offer of professional education by the private sector surpassed the public offer (RAMOS, 2014).

In 1996, the second LDB of National Education was created, Law No. 9,394/96, which is considered the legal landmark in the history and evolution of Professional and Technological Education in the national scenario, for providing for it in its own chapter, establishing its guiding principles, instituting the CSTs in Brazil and the verticalization of Professional Education (BRASIL, 1996).

Following the government of Fernando Henrique Cardoso (1995-2003), during the term of Luiz Inácio Lula da Silva (2003-2010), there was a great boost given to Professional Education in the country, at its various levels. In 2008, the Federal Institutes of Education, Science and Technology were created, public institutions within the Expansion Plan of the Federal Network of Professional and

Technological Education, which, among other aspects, was marked by President Lula's determination to ensure technological education a privileged place in the policies of his government, considering it of great importance for a sovereign national development, sustainable and inclusive (RAMOS, 2014).

1.4 THE HIGHER TECHNOLOGY COURSES IN THE CONTEXT OF HIGHER EDUCATION AND ITS REVITALIZATION IN THE BRAZILIAN EDUCATIONAL SCENARIO

The literature review made by the author reveals that in the mid-twentieth century there was a devaluation of vocational courses in relation to the traditional bachelor's and licentiate degrees, because they are associated with the history of professional education in Brazil, originally aimed at the disadvantaged and underprivileged classes of society, while the others were destined to the elite, creating a "duality" within Brazilian education (DETREGIACHI Fo., 2012; RAMOS, 2014). The vision of an education focused on professional training persisted and the fact that there was the initiative to offer higher education courses within the scope of professional and technological education, since the 1970s, did not alter the thinking of the elites. This thinking privileges full higher education courses, and prejudice still remains about professional education (TAKAHASHI, 2010).

Due to the requirement of increasingly qualified professionals and the need for continuous qualification, Brazil began to foster higher professional education. Contributing to this situation were the contingent of students who completed high school and sought to continue their studies, the pressure on educational systems to promote continuing education and the worldwide trend of investments in professional education. According to Takahashi (2010), this trend can be observed in the United States and in some European countries, where more than half of the students graduate from higher education courses in this modality of education. From the new LDB/1996, which understands that professional education is integrated with the different forms of education (CNE/CP Opinion no. 29/2002), this prejudice began to be changed. The educational and post-LDB/1996 policies emphasize the value and importance of professional education for the development of the country and its insertion in the technological area for the formation of higher education and qualification of young people, as well as for the improvement of the levels of employability and income of the population, contributing to the overcoming of this duality and prejudice (RAMOS, 2014; MARIN *et al.,* 2019).

The current Law of Guidelines and Bases of National Education, Law No. 9,394/1996, is considered the legal framework in the history and evolution of Professional and Technological Education, for providing for it in its own chapter, establishing its guiding principles, instituting the CSTs in Brazil and the verticalization of Professional Education (BRASIL, 1996). Chapter III of that law provides that:

- Professional and Technological Education is integrated with the different levels and modalities of education and with the dimensions of work, science and technology;

- the courses may be organized by technological axes, enabling the construction of different training itineraries;
- this type of education shall cover: 1) initial and continuing training courses or professional qualification; 2) high school courses; 3) undergraduate and graduate courses;
- undergraduate and graduate courses will have objectives, characteristics and duration according to the national curriculum guidelines established by the National Education Council.

According to the CNE/CP Opinion: 29/2002, which provides for Technological Education in the current Educational Legislation, the LDB/1996, in its article 39, grants professional education a special emphasis (BRASIL, 2002). Also according to this Opinion:

> The higher education course in technology must contemplate the training of a professional able to develop, in a full and innovative way, activities in a certain professional area, and must have specific training for: application and development of research and technological innovation; diffusion of technologies; management of production processes of goods and services; development of entrepreneurial capacity; maintaining their skills in tune with the world of work; and development in the context of the respective professional areas (BRASIL, 2002, p. 03).

Also according to the aforementioned Opinion, "Professional Education is no longer conceived as a simple instrument of assistentialist policy or linear adjustment to market demands" (BRASIL, 2002, p. 14). The new professional education is conceived as an important strategy for citizens to have access to the scientific and technological achievements of society, aiming, in addition to specific technical training, the global understanding of the production process, in an integral approach. Currently, CSTs are considered of great importance in the scenario of national development and should not be confused with mid-level vocational technical courses. According to Rosetti Jr. and Schimiguel (2011), according to the LDB/1996, currently in Brazil the expression **technological** education has a precise legal meaning, which is the training of short-term higher education aimed at training for the professions, especially in the industrial area, while **technical education** refers to the professional training of medium level. Therefore, the CSTs cannot be confused with the secondary and sequential level courses, which constitute a modality of higher education in which the student, after completing high school, can expand his knowledge or his professional qualification in a relatively short period (BRASIL, 1998).

According to Rosetti Jr. and Schimiguel:

> The graduations, as a formation in higher level, have their origin and composition in the structure of the Brazilian vocational education, in the same way as the technical courses in the secondary level. This graduation has its molding from economic demands and needs of the world of work (ROSETTI Jr. and SCHIMIGUEL, 2011, p. 02).

To Favretto and Moretto:

> The Higher Technology Courses are legally regular undergraduate courses, with National Curriculum Guidelines defined by the CNE, focused on the domain and application of scientific and technological knowledge in areas of knowledge related to one or more professional areas. They allow all kinds of graduate studies. They seek the development of professional skills that enable the correct use of technology. Access to the technology course occurs as in other undergraduate courses: it is open to candidates who have completed high school and have been classified in the selection process (FAVRETTO and MORETTO, 2013, p. 408).

According to the Basic Legislation of Professional and Technological Education of higher education, Opinion CNE/CP no 29/2002, the CSTs:

> Their purpose is the development of professional skills that allow both the correct use and application of technology and the development of new applications or adaptation in new professional situations, as well as the understanding of the implications arising therefrom and their relations with the production process, the human person and society. The objective to be pursued is the development of qualifications capable of allowing graduates to manage processes of production of goods and services resulting from the use of technologies and the development of skills for technological research and the dissemination of technological knowledge (BRASIL, 2002a, p. 271).

The current society is in constant transformation and rapid changes have been occurring in Brazilian higher education in recent decades as a result of new social demands, nationally and internationally. As a consequence, CSTs are being offered in response to these demands. These courses are structured in a more targeted way to this new reality and offered in a shorter period (two or three years of duration) than those of bachelor's and licentiate degrees, which are longer. They are thus a great opportunity for the higher education of students. These characteristics have a great appeal to young people, causing their demand and supply to grow rapidly in recent years (ROSETTI Jr., 2007). The CSTs have been increasingly attracting the interest of young Brazilians interested in higher education, involving research work and scientific investigation. In this way, these courses have been gaining space in a scenario previously dominated by bachelor's and bachelor's degrees, according to data from the Higher Education Censuses of 2017, 2018 and 2019, already presented previously.

In 2006, through Decree 5773/2006, the Ministry of Education prepared the first "National Catalog of Higher Technology Courses", which presented 98 course designations. A second version was made available in 2010, featuring 113 courses. The catalog is updated periodically and in its third and last edition, with the publication of Ordinance No. 413, of May 11, 2016, presents 134 denominations of higher education courses, divided into 13 technological axes, which structure its organization (BRASIL, 2006). In the second half of 2021, with the intention of preparing a new catalog, the Secretariat of Professional and Technological Education (SETEC) of the MEC began the training phase of the coordinators who will act in the updating of the catalog. The updating process aims to strengthen the Professional and Technological Education policy in the country (BRASIL, 2021).

The CSTs are offered in public educational institutions that are part of the Federal Network of Professional and Technological Education, such as the Federal Centers of Technological Education (CEFETs), the Federal Institutes of Education, Science and Technology (IFs) and also in public and private universities or colleges, which offer Professional and Technological Education (BRASIL, 2009). According to Rosetti Jr. and Schimiguel (2011), the private higher education network is more attuned to the new needs and current demands for higher education professionals. **This is due to the fact that in private institutions there is less bureaucracy for the implementation of new courses and more resources for their accreditation with the MEC, which provides the offer of courses according to the demands of the regions and students. In this way, private HEIs** have been leading the offer of new training courses for technologists, with abundant and diversified offer (ROSETTI Jr and SCHIMIGUEL, 2011).

Currently, the CSTs are in evidence, because in the last decade there has been a significant increase in the offer of higher education as a result of the government policy of expansion and democratization of higher education. Many university centers, colleges, universities, technological education centers, technology colleges, schools and higher institutions began to offer new modalities and new courses, fruits of changes in educational legislation and also of the new social and economic contours of the country. Also contributing to this were the public educational policies of the federal government, which, aiming at the democratization and expansion of higher education among the Brazilian population, created programs that aim to encourage and support the access and permanence of young students in higher studies, both in public institutions of the federal network and in the private network.

During the government of President Luiz Inácio Lula da Silva (2003-2010) Professional Education received a great boost at its various levels (RAMOS, 2014). In 2008, the Federal Institutes of Education, Science and Technology were created, public institutions within the Expansion Plan of the Federal Network of Professional and Technological Education, which was considered of great importance for sovereign, sustainable and inclusive national development. The creation of these institutes is presented and analyzed in an article by Pacheco, Pereira and Sobrinho (2010), who point out that the Secretariat of Professional and Technological Education of the Ministry of Education - SETEC / MEC - has been striving to offer opportunities for schooling and professionalization to thousands of young Brazilians, who are on the margins of society, with regard to their human and professional training. According to the authors, SETEC/MEC seeks to offer a professional education guided by the inseparability between general and professional training in the perspective of an integral education. Pacheco, Pereira and Sobrinho (2010), highlight the new face of Brazilian Professional and Technological Education. From the 90's began the reform of Professional and Technological Education in Brazil and, in this context, to regulate the Law of Guidelines and Bases of National Education - Law

No. 9,394/96, in April 1997, the government issued Decree No. 2,208/97 assigning to technical and vocational education its own and independent organization of high school. This new face was also signaled with the proposal to revitalize the CSTs from the 90s. Accordingto Souza (2012), the current higher technology courses hardly resemble their counterparts of the 60s and 70s. In these decades, the courses of technologists presented a terminal character. Currently, they are consolidated as a relevant higher education modality. The consolidation of the professional category of technologists also comes from the legal determination that equates CSTs to bachelor's and bachelor's degree courses. Today, the CSTs have the same validity as traditional undergraduate degrees and allow graduates access to graduate programs of any nature (SOUZA, 2012).

Rosetti Jr. and Schimiguel (2011) refer to CSTs as a "technological phenomenon of university education". However, the literature review shows that, while some authors currently consider Professional and Technological Education, at its various levels and its higher education courses, an academic solution to the current demand of the Brazilian labor market - which, as a result of the internationalization and globalization of the economy, has raised the demands for education and higher education of workers and employees - other authors see the situation differently and criticize the expansion of the higher education through a non-university route, whether public or private, which is not characterized by the inseparability between teaching, research and extension. This type of expansion, within this vision, would be a way for Brazil to compensate for its unfavorable position among Latin American countries regarding the low rates of young people between 18 and 24 years old enrolled in higher education (SANTOS and XEREZ, 2016).

Despite the great offer and acceptance of CSTs in the Brazilian higher education scenario, these courses are the target of criticism by several authors. Santos and Xerez (2016), for example, criticize the legal provisions that were created to ensure the structuring of a higher education in Brazil that would train professionals related to specific trades and whose higher education courses would meet the demands of the labor market. The authors claim that the policy of expansion of higher education, by valuing the expansion of CSTs, favors the precariousness of the university, pointing out that government incentives prioritize the expansion of access to higher education through lightened, flexible and practical courses. Their criticisms fall on a higher education that trains professionals immediately connected to the demands of the labor market, playing an important role in the process of social reproduction, since technological graduation figures as an alternative that attracts young people from popular strata to a "smaller" higher education. According to Santos and Xerez (2016), the defenders of this pedagogical proposal imagine solving with it the problem of the shortage of qualified workers, reducing the problem of unemployment, as well as expanding access to higher education. In this way, then, education would be secondary to economic development instead of favoring the integral development of society. However, these authors do not fail to recognize that education in a capitalist

society has no way of escaping the needs related to the world of capital. Authors such as Jucá, Oliveira and Souza (2010) affirm that the valorization of the CSTs, fostered by the Educational Policies for this type of education, needs to be seen with reservations, since both funding agencies and large industries are interested in the qualified graduates of technological higher education.

Still nthe context of the criticisms that focus on professional and technological education, Cazarotti and Bernardes (2018), emphasize that human capital is not properly considered, since the intention is only the formation of the working class. The government alleges an alleged improvement in the quality of education that does not occur in practice. According to Frigotto (2007), the inequality and the difficulty of students to remain in studies and complete basic education is a consequence of the inequalities prevalent in Brazil. He says that educational policies aimed at professional and technological education in Brazil are not concerned with the expansion of scientific, technical or technological production or with the right to citizenship and that their focus is only on the training of workers to work in the labor market. Thus, there is no interest in integral, quality education, aimed at the citizen and his performance in the social and political scenario. Still according to Frigotto (2007), the ideal type of integral education is obtained only by those who can afford the education of their children, who will attend universities in regular courses seeking an integral formation. The children of the working class would opt for short courses, focused on technique, to quickly enter the labor market. The universalization of education, according to the author, should be focused on theoretical, technical and political quality, which should be valid for all Brazilians, children and young people (FRIGOTTO, 2007).

Among other authors who criticize the CSTs, Coan (2014) and Ramos (2014) stand out, who also claim that the CSTs are intended to train professionals focused only on the interests of the market and that the training offered by them is not "integral", does not follow the principles of "polytechnics", when they should offer training according to their principles, with a view to training not only professionals for the world of work, but also that they master the scientific contents that underpin the techniques with which they work, that they know how to develop research and that they receive a training focused on citizenship, to form critical and reflective citizens (COAN, 2014; RAMOS, 2014). Santos and Xerez (2016), also relate technological higher education to a qualification of little solidity and aligned with an alleged polyvalence, which does not contribute to a comprehensive and critical training and that also does not produce basic science.

In order to understand the meaning of these criticisms, the following is the conception of "polytechnics" according to Saviani:

> Polytechnics refers to the mastery of the scientific foundations of the different techniques that characterize the modern productive work process. It is related to the fundamentals of the different modalities of work and is based on certain principles, certain foundations, which must be guaranteed by polytechnic training. Why? It is assumed that, mastering these foundations,

> these principles, the worker is in a position to develop the different modalities of work, with the understanding of his character, of his essence. It is not a case of a worker trained to perform a certain task with perfection and who fits into the labor market to develop that type of skill. On the other hand, it is a question of providing it with a multilateral development, a development that embraces all the angles of productive practice to the extent that it dominates those principles that are at the basis of the organization of modern production. As modern production is based on science, it is necessary to master the scientific principles on which the organization of modern work is founded (SAVIANI, 2003, p. 140).

Saviani's conception of Polytechnics seems to be in line with what was found in some of the texts of the MEC referring to professional and technological education, already presented previously, such as the CNE/CP Opinion: 29/2002, on pages 03 and 14 (BRASIL, 2002), and the SETEC/MEC document of 2008 (BRASIL, 2008), of which some excerpts are cited and which show the concern to present a "new professional education", At least in the proposed theory, as presented in terms of public policies of the federal government for this modality and for the qualification in professional education at the higher level. The organization and encouragement given by SETEC/MEC to this educational modality brought a new perspective of higher education to Brazil that already exists in other countries (CNE/CES Opinion No. 436/2001). The most recent and updated literature on Professional and Technological Education highlights a "revitalization" of CSTs in the Brazilian scenario, the "new face of technological professional education" (PACHECO, 2008; NEPHEW, 2008; TAKAHASHI and AMORIM, 2008; PACHECO, PEREIRA AND SOBRINHO, 2010; SOUZA, 2012; FAVRETTO and MORETTO, 2013; MARIN *et al.* 2019).

Cazarotti and Bernardes (2018) say that to the present day duality remains in the history of education. The level of professional education is raised, previously carried out at the basic level, then at the middle level and now at the higher level. However, it must be admitted that there has already been a development, a breakthrough. There are now technological courses with less technical curricula that explain ethical values, offer disciplines in the area of humanities focused on political-critical and citizen training, as observed in graduate courses of federal institutes of education, science and technology, with the intention of seeking an education based on integrality (CAZAROTTI and BERNARDES, 2018).

Saviani in his article *The Theoretical Shock of Polytechnics* also comments on the opinion of Manacorda, who in his work opts for the expression "technological education" to designate the unity between theory and practice in education because he considers it more appropriate, instead of "polytechnic education" (MANACORDA, 1991). However, Saviani (2003) argues that beyond the terminological question, regardless of the preference for the denomination "technological education" or "polytechnics" it is important to note that, from the conceptual point of view, what is at stake is the same content, since it is the union between intellectual training and productive work, which can also be understood as the "unification of instruction with material production" or, also, "technological, theoretical and practical instruction".

In turn, the document entitled *Bases for a National Policy of EPT,* prepared by SETEC/MEC (PACHECO, 2008), which has worked on the construction of public policies for the qualification and expansion of professional and technological education throughout the national territory, proposes the following set of actions:

> a) The inseparability between general and professional training in the perspective of integral education;
> b) The organic link between the educational policies for Professional and Technological Education (EPT) and the productive, social and cultural arrangements of the different Brazilian regions.
> In other words, SETEC/MEC has sought to articulate integral education (general and professional and technological training) to economic and social development in a dynamic whose main objective is the inclusion of thousands of women and men left on the margins of Brazilian society, either with regard to schooling or from the perspective of work (PACHECO, 2008, p.01).

In addition, the document of SETEC/MEC (PACHECO, 2008), outlines eighteen (18) guiding axes of his work, from which some selected excerpts are presented:

> - the strengthening of the role of EFA in national development and social inclusion policies;
> - the democratization of access to professional training at its various levels, supported by public policies of access and permanence;
> - the articulation of various instances of government and civil society with a view to the integration of public policies to ensure: a) the conception of integral education; b) the conception of EPT as a process based on scientific research in order to promote the development of science and technology, technological innovation;
> - growing incentive in the field of research in the federal network, with a conception of education in which research, in addition to scientific principle also becomes an educational principle, seeking to unite knowledge/doing, science/technology, theory/practice, making the environment favorable to research and knowledge production (BRASIL, 2008, p.2-14).

As previously stated, by analyzing the documents presented, it is observed that the bases elaborated for the current Brazilian Professional and Technological Education advocate the principles of inseparability between general and professional training in the perspective of an integral education focused on the formation of autonomous, critical and reflective subjects. Such principles must be materialized in a pedagogical practice and conditions that sustain the inseparability with its valorization in the curriculum and its practical development. According to Cazarotti and Bernardes (2018), it is impossible for society and governments to neglect technological education, as both benefit from its offer. CSTs train professionals in areas where there are no other degrees. These degrees are sought after by people who need to qualify or requalify, and if they were long courses like bachelor's degrees, they probably wouldn't have the same demand. The CSTs, even of a professionalizing character, need to be thought within a conception of integral education that combines the knowledge of the method of production of this knowledge with its application in the practice of the profession. In addition, they are of great importance within the expansionist movement of Higher Education,

contributing to the struggle of the working class in the search for the continuity of its formation (SOUZA, 2017).

In contrast to some of the main criticisms of the CSTs, authors such as Limena and Ramos (2011) point out that the reduction of the time of completion of the courses does not necessarily imply in low quality or fragmented and not integral training, since there is no evidence of unsatisfactory performance of the graduates in the social, political and economic context. Likewise, meeting the demands of capital or the current economic system are not exclusive characteristics of the modality of technological higher education and are also observed in bachelor's degrees. According to the authors, the criticisms are related more to a repudiation of the system than to the proposal of the model of these courses. The fact that they are offered preferentially by the private sector, also the target of criticism, is characterized in the Brazilian education model and not specifically in the Technological Graduation. In addition, the alleged lack of commitment to the integral formation of students does not find support in any analysis of the national guidelines or pedagogical projects of these courses.

Despite the criticisms of several authors to the CSTs, as previously exposed, the technology graduate is increasingly in demand and has become a strategic professional, since he has aptitude for the application of technologies that can contribute to scientific research, in addition to presenting solid training in his area of expertise. With the globalization and internationalization of the Brazilian labor market, there has been an increase in the demands for schooling and higher education. As a result, the technological higher education is being considered as a timely academic solution to this demand and comes to meet this need for higher education required by the current Brazilian productive system, with agility, specificity and competence. These courses represent a lot for young people who, thanks to them, have been inserted into the labor market and have had an improvement in their education, income and status. It should be recognized, despite the criticism, the importance of these courses, since they enable many young people from 18 to 24 years old, as well as older people who return to study, to improve their career, their professional situation and that of their family.

The CSTs have demonstrated a significant capacity to adapt to the new context of Brazilian higher education and, because they are offered in a shorter period of time, make it possible for a huge portion of the Brazilian population to have higher education (ROSETTI JR. and SCHIMIGUEL, 2011), contributing to the expansion and democratization of higher education in the current Brazilian educational scenario, in alignment with the current public educational policies of the federal government.

This item presents considerations about the CSTs in the context of Brazilian higher education, focusing on their revitalization in the educational scenario, as well as the various criticisms of which these courses are targeted. It should be remembered, however, that many of them are part of generalizations that do not reflecton opposing academic proposals, which focus on ethical, political-

critical and transformative training. In the view of Cazarotti and Bernardes (2018), there is an evolution in this sense in technological courses, especially in graduate studies. The improvement of the academic quality of the CSTs involves the insertion of scientific contents aimed at reflection and research, general training and the training of teachers to act in vocational education at higher level. CSTs provide opportunities for many to reach higher academic levels and pursue their studies.

1.5 PROFESSIONAL AND TECHNOLOGICAL EDUCATION IN THE STATE OF SÃO PAULO: THE STATE CENTER FOR TECHNOLOGICAL EDUCATION PAULA SOUZA AND FATECS

Professional Education in Brazil has a centenary history and has undergone several transformations over time, which can be observed since the colonial, imperial, republican period and also according to the different governmental periods. Originally, it had a welfare character, but it was gaining new configurations due to the changes that the country was going through in terms of industrialization, urbanization and transformations in the economic sector.

With the increase of industrialization in the country, over the decades, the demand for qualified and specialized professionals has also increased. The Federal Constitution of 1937 was the first to specifically address professional, technical and industrial education in the country, instituting professional pre-vocational education as the first duty of the State, and it was responsible for founding institutes of professional education, subsidizing those of initiative of the States and Municipalities and of individuals or private and professional associations.

With regard, particularly, to Professional and Technological Education in the state of São Paulo, it is worth mentioning the relevance of the State of São Paulo in the innovation and provision of public professional and technological education in Brazil. The first technology courses were offered by the State Center for Technological Education (CEET), today known as the State Center for Technological Education Paula Souza (CEETEPS). According to data from the Electronic Portal of the institution, it was created by the decree-law of 06/10/1969, in the administration of Governor Roberto Costa de Abreu Sodré (1967-1971). Sodré had a great interest in technical education, considering it essential to the development of the country. In his visits to the United States and also to France, he verified the importance that this type of education received abroad, in addition to having had the chance to know the appreciation of the technical area in Japan. He was an advocate of vocational technical education, emphasizing the creation of technical schools rather than colleges, which went in the opposite direction to the desires of society, which demanded higher education. Through Sodré's initiative, which resulted in the creation of the State Center for Technological Education of São Paulo (CEETSP), there was a great incentive to professional education in the state of São Paulo (DETREGIACHI Fo., 2012).

According to data from the Paula Souza Center's electronic portal, accessed in November 2021, it was created in 1969 and celebrated 50 years of foundation in 2019. His memory blends with the centennial history of public vocational education in São Paulo. The Paula Souza Center (CPS) is an autarchy of the state government, linked to the Secretariat of Economic Development. Currently the institution is present in 369 municipalities, manages 224 Technical Schools (ETECs), 74 State Colleges of Technology (FATECs) and has more than 322 thousand students in technical courses of medium and higher technological level. The Center was created with the mission of structuring the first Higher Technology Courses in the country, but its activities extended to all levels of education, contributing to the expansion of professional education in the state by also encompassing existing high school units (ETECs) and consolidating itself as the largest public institution of professional education in Latin America (CENTRO PAULA SOUZA, 2021).

The institution began operating in 1970 under the name of State Center for Technological Education of São Paulo (CEET), offering three courses related to the area of Civil Construction (Earth Movement and Paving; Construction of Hydraulic Works and Construction of Buildings) and two related to the area of Mechanics (Designer and Workshops). Thus, the first two FATECs of the state of São Paulo emerged, located in the cities of Sorocaba and São Paulo, still in the management of Sodré, marking the beginning of the Faculties of Technology of the state.

According to Feitoza (2017), the teaching model implemented by the first FATECs was intended to train professionals to meet the demands of the labor market and the economic sector, unlike the traditional higher education in force at the time. Subsequently, this perspective was broadened and currently the faculties also aim to promote culture, the development of applied research and the extension of their services to the community.

As for technological education, the vacancies for the courses offered by CEETEPS have expanded in order to meet the local productive sectors. In the 80s, 90s and 2000s there was the creation of new units of FATECs, contributing to the increase in the supply of vacancies in the CSTs.

According to the Paula Souza Center Portal, this autarchy is linked to the Universidade Estadual Paulista Júlio de Mesquita Filho – UNESP. The courses offered by the CPS are evaluated by the State Council of Education of São Paulo, which, in 2011, through Deliberation No. 106/2011, granted university autonomy to the institution. As a result of this Resolution, according to Feitoza (2017), the CPS is authorized to:

a) create, modify and extinguish its technology, specialization and extension courses;

b) increase and decrease the number of vacancies in their courses, as well as the shift in which they are offered;

c) develop the programs of its courses;

d) start the operation of the courses;

e) issue and register their own diplomas.

The institution operates according to the demands of the various regions of the state of São Paulo and aims to train professionals to meet them. Currently, the ETECs of the Paula Souza Center offer High School, Technical and High School integrated to Técnico, aimed at the Industrial, Agricultural and Services sectors. The courses are offered in face-to-face, semi-face-to-face, online, Youth and Adult Education (EJA) and technical specialization. Altogether there are 212 courses, aimed at the public and private productive sectors. The agency, linked to the Secretariat of Economic Development, administers the FATECs and ETECs, in addition to the decentralized classes – units that work with one or more technical and integrated courses under the supervision of an ETEC – in more than 300 municipalities in São Paulo.

The FATECs of the Paula Souza Center, which offer the Higher Technology Courses, have expanded to the various regions of the state, but most of their units are in the metropolitan region of the city of São Paulo. At the present time, the colleges offer 84 undergraduate courses in various areas, such as Civil Construction, Mechanics, Informatics, Information Technology, Tourism, among others. The Center also offers postgraduate courses (*stricto* and *lato sensu*), technological updating and extension. In addition, it is recognized for the high quality standard of its courses (CENTRO PAULA SOUZA, 2019).

The name of the institution is a tribute to Antônio Francisco de Paula Souza (1843-1917), an engineer, politician and professor, who studied Engineering in Germany and Switzerland and was the founder of the Polytechnic School of the University of São Paulo (Poli-USP). He wanted to implant in the country an education focused on professional training and work, which would differ from an education focused on the European academic model. He distinguished himself as a man ahead of his time, an educator who defended the role of the school as a means of training professionals and not just a place of academic discussions (CENTRO PAULA SOUZA, 2021).

CSTs have been gaining prominence in the higher education scenario in recent years. In 2002, the Federal Government took the initiative to expand technological higher education within the Federal Network of Professional Education, which was already being done by the private initiative, which, in 2001, had created dozens of new CSTs throughout the country. Since then, the popularity of these courses has increased, both in the public and private schools (DETREGIACHI Fº., 2012).

According to the 2019 Higher Education Census (BRASIL, 2020), the data indicate that the search for the academic degree of technologist has been growing in the national territory. In the state of São Paulo this is no different, and this expansion is related to the increase of institutions, public and private, that offer such courses and the LDB/1996, considered a milestone in the legitimation and revitalization of Professional and Technological Education in Brazilian higher education.

In the state of São Paulo, the CPS has developed programs and actions to favor access and permanence in the courses offered in its units. In order to democratize access and also favor the right to permanence and successful completion of students until the end of their academic career, some benefits and aids are offered by the institution.

Currently, CEETEPS meets the policy of expansion of professional and technological education in the state of São Paulo and is the largest state institution in the country dedicated to technical and technological professional education (FEITOZA, 2017).

2 FINAL CONSIDERATIONS

Presented here is an overview of higher education and professional and technological education in contemporary Brazil, as well as a brief overview of Brazilian higher education, with its expansion in the 1990s and under the new LDB/1996, elaborated in a historical-political context of neoliberal tendencies and under the influence of multilateral organizations. This resulted in the expansion of higher education institutions and courses in the country, with a view to the democratization of this level of education, being instituted the diversification and flexibilization of these institutions, which caused a great increase of private institutions of higher education in the country and the increase in enrollment in this segment of education.

The origin, development and historical-political contextualization of EFA in Brazil were explained, as well as the contextualization of CSTs in higher education and their revitalization. Finally, the creation of the Paula Souza Center and the implementation of the EPT in the state of São Paulo were addressed. Today, unlike the initial idea of training professionals to only meet the demands of the economic sector, the faculties of the CPS - FATECs - are guided by a broader perspective of this training, focusing on an integral education.

Professional education has undergone several transformations over time and has gained new configurations. The creation of CEETEPS in the state of São Paulo gave this state a relevant role in the innovation and offer of public EPT.

REFERENCES

BRASIL. Constituição (1937). Constituição dos Estados Unidos do Brasil. Rio de Janeiro, 1937. Disponível em <http://www.planalto.gov.br/ccivil_03/constituicao/constituicao37.htm>. Acesso em: 25 abr. 2021.

BRASIL. Constituição (1988). Constituição da República Federativa do Brasil de 1988. Presidência da República. Casa Civil. Brasília, DF: Senado Federal. Disponível em: <http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm>. Acesso em: 27 mar. 2020.

BRASIL. Decreto 5.800, de 8 de junho de 2006. Dispõe sobre o Sistema Universidade Aberta do Brasil - UAB. Presidência da República, Casa Civil, Subchefia para Assuntos Jurídicos, Brasília, DF, 2006. Disponível em: <http://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2006/Decreto/D5800.htm>. Acesso em: 23 abr. 2021.

BRASIL. Lei de Diretrizes e Bases da Educação Nacional n. 9.394/96. Brasília, 1996. [recurso eletrônico]. 8. ed. Brasília: Câmara dos Deputados, Edições Câmara, 2013. Disponível em: <https://www2.senado.leg.br/bdsf/bitstream/handle/id/529732/lei_de_diretrizes_e_bases_1ed.pdf>. Acesso em 29 mar. 2021.

BRASIL. Ministério da Educação. Diretrizes Curriculares Nacionais para a Educação Profissional de Nível Tecnológico. Parecer CNE/CP:29/2002. Brasília, 2002a. Disponível em: <http://portal.mec.gov.br/cne/arquivos/pdf/cp29.pdf>. Acesso em: 20 mar. 2020.

BRASIL. Ministério da Educação. Diretrizes Curriculares Nacionais para a Educação Profissional de Nível Tecnológico. Parecer CNE/CP:29/2002, homologação publicada no DOU 13/12/2002. Resolução CES/CNE/12/2002. Brasília, 2002b. Disponível em: < http://portal.mec.gov.br/cne/arquivos/pdf/cp29.pdf>. Acesso em: 11 fev. 2021.

BRASIL. Ministério da Educação. Retificação do parecer CES 672/98: Cursos Sequenciais no Ensino Superior. Parecer CNE/ CES 968/98, homologação publicada no DOU 23/12/1998. Resolução CES/CNE/12/1998. Disponível em: <http://portal.mec.gov.br/cne/arquivos/pdf/1998/pces968_98.pdf>. Acesso em: 23 dez. 2021.

BRASIL. Ministério da Educação. Secretaria de Educação Profissional e Tecnológica. Diretrizes Curriculares Nacionais no Nível de Tecnólogo. Legislação Básica - Nível Superior. Parecer, CNE/CP no 29/2002. Brasília 2008. 7ª ed. Disponível em: <portal.mec.gov.br/component/tags/tag/33316>. Acesso em: 20 fev. 2019.

BRASIL. Ministério da Educação. Secretaria de Educação Profissional e Tecnológica. Brasília, 2018. Disponível em: <http://portal.mec.gov.br/setec-secretaria-de-educacao-profissional-e-tecnologica>. Acesso em: 01 nov. 2021.

BRASIL. Ministério da Educação. Centenário da Rede Federal de Educação Profissional e Tecnológica. Brasília, 2009. Disponível em: <http://portal.mec.gov.br/setec/arquivos/centenario/historico_educacao_profisssional.pdf>. Acesso em: 25 mar. 2020.

BRASIL. Ministério da Educação. Plano Nacional da Educação 2014-2024. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. Brasília: Inep, 2015. Disponível em: <http://portal.inep.gov.br/informacao-da-publicacao/-/asset_publisher/6JYIsGMAMkW1/document/id/493812>. Acesso em: 18 mar. 2020.

BRASIL. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (INEP). Censo da Educação Superior 2019. Brasília, 2020a. Disponível em: <https://download.inep.gov.br/educacao_superior/censo_superior/documentos/2020/Apresentacao_Censo_da_Educacao_Superior_2019.pdf>. Acesso em: 22 abr. 2021.

BRASIL. Ministério da Educação. MEC inicia nova fase de atualização do Catálogo Nacional de Cursos Superiores de Tecnologia. Brasília, 2021. Disponível em: <https://www.gov.br/mec/pt-br/assuntos/noticias/mec-inicia-nova-fase-de-atualizacao-do-catalogo-nacional-de-cursos-superiores-de-tecnologia>. Acesso em: 25 fev. 2021.

CARVALHO, C. H. A. de. Agenda neoliberal e a política para o ensino superior nos anos 90. Revista Diálogo Educacional, Curitiba, v. 7, n. 21, p. 83-101, mai/ago. 2007. Disponível em: <file:///C:/Users/Particular/Downloads/4561-7516-1-SM.pdf>. Acesso em: 06 fev. 2022.

CAZAROTTI, M. L. B.; BERNARDES, S. T. de A. Cursos superiores de tecnologia: fundamentos, controvérsias & desafios. RPGE - Revista online de Política e Gestão Educacional, Araraquara, v. 22, n. 3, p. 992-1046, set/dez 2018. Disponível em: <https://periodicos.fclar.unesp.br/rpge/article/view/11368/7851>. Acesso em: 28 set. 2021.

CENTRO PAULA SOUZA – CPS completa 50 anos de educação profissional, Centro Paula Souza – Portal, 2019. Disponível em: <https://www.cps.sp.gov.br/cps-comemora-50-anos-de-pioneirismo-no-ensino-profissional/>. Acesso em: 23 dez. 2021.

CENTRO PAULA SOUZA - Sobre o Centro Paula Souza, Centro Paula Souza – Portal, 2021. Disponível em: <https://www.cps.sp.gov.br/sobre-o-centro-paula-souza/>. Acesso em: 07 mar. 2022.

COAN, M. Formação Profissional e Politecnia. 2014. Instituto Federal de Santa Catarina - IFSC. Florianópolis: 2014. Disponível em: <file:///C:/Users/Particular/Downloads/Esp%20Proeja%20-%20Politecnia%20-%20MIOLO%20(2).pdf >. Acesso em: 19 mar. 2020.

DETREGIACHI Fo., E. A evasão escolar na educação tecnológica: estudo de uma Unidade do Centro Estadual de Educação Tecnológica Paula Souza. 2012. 126 f. Tese (Doutorado em Educação) - Universidade Estadual Júlio de Mesquita Fo. Faculdade de Filosofia, Ciências e Letras. Marília, SP, 2012.

DOURADO, L. F. Reforma do Estado e as políticas para a educação superior no Brasil nos anos 90. Educ. Soc., vol. 23, n. 80, Campinas, set, 2002. Disponível em: <https://www.scielo.br/j/es/a/XyLXN7mtdPGgnScr5MgYbHK/?format=pdf&lang=pt>. Acesso em: 06 fev. 2022.

FAVRETTO, J.; MORETTO, C.F. Os cursos superiores de tecnologia no contexto de expansão da educação superior no Brasil: a retomada da ênfase na educação profissional. Educação e Sociedade, vol. 34, n. 123, Campinas, abr/jun, 2013. Disponível em: <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0101-73302013000200005&lng=en&nrm=iso&tlng=pt>. Acesso em: 28 abr. 2020.

FEITOZA, A. S. Fatores de evasão na educação profissional tecnológica: um estudo baseado no olhar do aluno evadido. 2017. 133 f. Dissertação (Mestrado em Gestão e Desenvolvimento da Educação Profissional) - Centro de Educação Tecnológica Paula Souza, São Paulo, 2017.

FIALA, D. A. de S. A política de expansão da educação profissional tecnológica de graduação pública no estado de São Paulo (2000-2007). 2016. 178f. Dissertação (Mestrado em Educação) - Faculdade de Educação. UNICAMP. Campinas, SP, 2016.

FRIGOTTO, G. A relação da educação profissional e tecnológica com a universalização da educação básica. Educação & Sociedade, Campinas, vol. 28, n. 100 - Especial, p. 1129-1157, out. 2007. Disponível em: <http://www.cedes.unicamp.br>. Acesso em: 18 mar. 2020.

GISI, M. L.; PEGORINI, D. G. As políticas de acesso e permanência na educação superior: a busca da igualdade de resultados. In. Revista online de Política e Gestão Educacional, v.20, n.1, jan./abr. 2016. Disponível em: <https://periodicos.fclar.unesp.br/rpge/article/view/9390>. Acesso em: 13 fev. 2020.

JUCÁ, M. C.; OLIVEIRA, P. J.; SOUZA, R. J. Cursos Superiores Tecnológicos: um avanço da educação superior no Brasil. In: Colóquio internacional sobre gestion universitária em America del Sur, X. Argentina, 2010. Disponível em: <https://repositorio.ufsc.br/xmlui/bitstream/handle/123456789/97065/CURSOS%20SUPERIORES%20TECNOL%C3%93GICOS%20UM%20AVAN%C3%87O%20DA%20EDUCA%C3%87%C3%83O%20SUPERIO.pdf?sequence=1&isAllowed=y>. Acesso em: 01 nov. 2021.

LIMENA, M. M.; RAMOS, A. C. P. Formação para o Trabalho: Reflexões sobre Críticas a Graduação Tecnológica no Brasil. VIII Simpósio de Excelência em Gestão e Tecnologia – SEGeT, 2011. Resende, RJ. Disponível em: <https://www.aedb.br/seget/arquivos/artigos11/51114642.pdf>. Acesso em: 29 set. 2021.

MANACORDA, M. A. Marx e a pedagogia moderna. São Paulo: Editora Cortez/Autores Associados, 1991.

MARIN, A.C.; JUNGER, A.P.; ASSAYAG, R.M.; AMARAL, L.H. Cursos Superiores Tecnológicos no Brasil: o crescimento da modalidade de ensino superior nos últimos anos. Revista Humanidades e Inovação, v.6, n. 2, 2019. Disponível em: <https://revista.unitins.br/index.php/humanidadeseinovacao/article/view/962>. Acesso em: 16 mar. 2020.

MARTIN, A. Globalization, knowledge and society. In: MARTIN, A. e KING, E. (eds.), Globalization, knowledge and society (Readings from International sociology), London, Sage Publications, 1990.

OLIVEIRA, J. F.; CATANI, A. M. A educação superior. In: OLIVEIRA, Romualdo Portela de; ADRIÃO, Theresa (OrgS.). Organização do ensino no Brasil. 1ª ed. São Paulo: Editora Xamã, 2002.

PACHECO, E. M. SETEC/MEC: Bases para uma Política Nacional de Educação Profissional Tecnológica. 2008. Disponível em: <http://portal.mec.gov.br/setec/arquivos/pdf2/artigos_bases.pdf>. Acesso em: 29 abr. 2021.

PACHECO, E. M.; PEREIRA, L.A.C.; SOBRINHO, M.D. Institutos Federais de Educação, Ciência e Tecnologia: limites e possibilidades. Linhas críticas, Brasília, DF, v. 16, n. 30, p. 71-88, jan./jun. 2010. Disponível em: <https://periodicos.unb.br/index.php/linhascriticas/article/view/3568/3254>. Acesso em: 29 abr. 2021.

PEREIRA, L. C. B. Gestão do setor público: estratégia e estrutura para um novo Estado. In. Bresser Pereira, L. C.; Spink, P. Reforma do Estado e administração pública gerencial. Rio de Janeiro: FGV, 1998, p. 21-38.

RAMOS, M. N. História e Política da Educação Profissional. Coleção Formação Pedagógica, vol. V. 1ª. ed. Curitiba: Instituto Federal do Paraná, 2014. Disponível em: <https://curitiba.ifpr.edu.br/wp-content/uploads/2016/05/Hist%C3%B3ria-e-pol%C3%ADtica-da-educa%C3%A7%C3%A3o-profissional.pdf >. Acesso em: 18 mar. 2020.

ROSA, C. M. Marcos Legais e a Educação Superior no Século XXI. Revista Eletrônica de Educação, v. 8, n. 3, p. 236 - 250, 2014. Disponível em: <http://www.reveduc.ufscar.br/index.php/reveduc/article/view/1029/369>. Acesso em: 01 nov. 2021.

ROSETTI JR., H. Mudanças no ensino superior e os novos modelos de graduação científica. Revista Científica da Faculdade de Tecnologia FAESA, Vitória - ES, n.1, p.7-10, jan./dez. 2007. Disponível em: <https://portal.cetfaesa.com.br/midias/1%25C2%25AA-Edicao-da-Revista-Cientifica-CET-FAESA-123.pdf>. Acesso em: 26 fev. 2020.

ROSETTI JR., H.; SCHIMIGUEL, J. Histórico e Contexto Econômico dos Cursos Superiores de Tecnologia no Brasil. In: Observatório de la Economia Latino-americana. no 152, 2011. Disponível em: <http://www.eumed.net/cursecon/ecolat/br/11>. Acesso em: 25 mar. 2020.

SANTOS, J. D. G.; XEREZ, A. S. P. Apontamentos sobre a expansão da graduação tecnológica no Brasil. In: Revista online de Política e Gestão Educacional, v.20, n.3, p.600-622, 2016. Disponível em: <https://periodicos.fclar.unesp.br/rpge/article/view/9712/6426>. Acesso em: 16 set. 2019.

SAVIANI, D. O choque teórico da Politecnia. Trabalho, Educação e Saúde, v. 1, n.1, mar. Rio de Janeiro: 2003. Disponível em: <https://doi.org/10.1590/S1981-77462003000100010>. Acesso em: 17 mar. 2020.

SGUISSARDI, V. Reforma universitária no Brasil - 1995-2006: precária trajetória e incerto futuro. Educ. Soc., vol. 27, n.96, Campinas: 2006. Disponível em: <https://www.scielo.br/j/es/a/PsCdVc87JdsF6KDX7LhGq6H/?format=pdf&lang=pt>. Acesso em: 06 fev. 2022.

SGUISSARDI, V. Modelo de expansão da educação superior no Brasil: predomínio privado/mercantil e desafios para a regulação e a formação universitária. Educ. Soc., vol. 29, n.105, Campinas: 2008. Disponível em: <https://www.scielo.br/j/es/a/9QPgLZg9NZdCt7vVwBCCyqj/?format=pdf&lang=pt>. Acesso em: 06 fev. 2022.

SILVA, J. A. Curso de Direito Constitucional Positivo. São Paulo: Editora Melhoramentos, 2008.

SOARES, M. C. C. Banco Mundial: políticas e reformas. In: Warde, M. J. et al. O Banco Mundial e as políticas educacionais. São Paulo: Editora Cortez, 1996.

SOBRINHO, M.D. Um novo lugar no desenvolvimento científico e tecnológico nacional. Revista Brasileira da Educação Profissional e Tecnológica, v. 01, n. 01, 2008. Disponível em: <http://www2.ifrn.edu.br/ojs/index.php/RBEPT/article/view/2898>. Acesso em: 20 jan. 2020.

SOUZA, J. B. Política de expansão dos cursos superiores de tecnologia: nova face da educação profissional e tecnológica. 2012. 216 f. Tese, (Doutorado em Educação) - Univ. Federal de Minas Gerais, Belo Horizonte, 2012.

SOUZA, V. L. B. S. Acesso e permanência na educação profissional tecnológica: um estudo de caso no Instituto Federal de Educação, Ciência e Tecnologia da Paraíba – IFPB – Campus Cajazeiras. 2017. 108 f. Dissertação, (Mestrado em Políticas Públicas, Gestão e Avaliação da Educação Superior) – Universidade Federal da Paraíba, João Pessoa, 2017.

TAKAHASHI, A. R. W. Cursos superiores de tecnologia em gestão: reflexões e implicações da expansão de uma (nova) modalidade de ensino superior em administração no Brasil. Revista de

Administração Pública. Rio de Janeiro, 44(2):385-414, mar/abr, 2010. Disponível em: <https://www.scielo.br/j/rap/a/LNm8R7GCXjSPGMgBR3bgFjP/?format=pdf&lang=pt>. Acesso em: 28 set. 2021.

TAKAHASHI, A. R. W; AMORIM, W. A. C. Reformulação e expansão dos cursos superiores de tecnologia no Brasil: as dificuldades da retomada da educação profissional. Ensaio: Avaliação e Políticas Públicas em Educação. [online]. Rio de Janeiro, vol.16, n.59, pp.207-228. abr/jun 2008. Disponível em: <http://www.scielo.br/scielo.php?pid=S0104-40362008000200004&script=sci_abstract&tlng=pt>. Acesso em: 21 mar. 2020.

UNESCO. Declaração Mundial sobre Educação Superior no Século XXI: Visão e Ação. Paris: UNESCO, 1998.