

Professional Education in the US: historical, legal and curricular landmarks

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ABSTRACT – Professional Education in the US: historical, legal and curricular landmarks. This article, based on data compiled in a comparative study, outlines the USA education system, followed by a description of historical milestones and the main legislation that defines professional education in that country. Without pretension to carry out systematic analyzes, the article is based on the perception in its authors constructed from visits, interviews, conversations, reading of legislation and contact with a culture of American reference information for professional performance. A configuration of professional education in that country illustrates a force that moves it. There is also a strong movement to pass legislation covering large-scale Member States to monitor student performance.

Keywords: Professional Education. Legislation. Curriculum. USA.

RESUMO – Educação Profissional nos EUA: traços históricos, legais e curriculares. Este texto, a partir de dados constituídos em um estudo comparativo, traça um panorama do sistema de ensino dos EUA, seguido de uma descrição de marcos históricos e das principais legislações que definem a educação profissional naquele país. Sem a pretensão de efetuar análises sistemáticas, o artigo se fundamenta na percepção que os seus autores construíram a partir de visitas, entrevistas, conversas, leitura de legislações e contato com a cultura estadunidense referente à formação para atuação profissional. A configuração de educação profissional naquele país ilustra a força que o move. Há também um forte movimento para aprovar legislações que cobrem dos estados avaliações em larga escala para monitorar o desempenho dos alunos.

Palavras-chave: Educação Profissional. Legislação. Currículo. EUA.

Introduction

This article was constituted in the context of execution of a cooperation project between researchers of a Brazilian public university and a university from state of Michigan in the United States of America (US). This project, promoted by resources of the São Paulo Research Foundation (FAPESP)¹, investigates similarities and singularities of the organization of Brazilian and United States education systems, as well as legal and curricular landmarks, highlighting possible specific guidelines on the teaching of mathematics in labor training; analyzes similarities and singularities, inherent to the needs, difficulties and strategies of mathematical formation, present in the professional formation in the context of the courses of the industry area of the researched institutions.

In that project, the researchers used a methodology² that is defined by documentary analysis and interviews and took as focus of study two professional education institutions in high school level, one in Brazil and one in the US. We will focus on this article in the part of the study carried out in the United States context.

Among the results that the research points out, it is possible to emphasize that the professional education existing in a certain locality is defined by a set of practices and legal landmarks historically constituted. Thus, this text proposes to present characteristics of professional education that currently exists in the US, mainly considering the legislation that regulates it; and was organized based on the perceptions of Brazilian researchers when visiting an institution in the state of Michigan (US), when talking with US teachers and managers, consulting state and federal legislations and living in the US a little of the culture of professional education in that country. It refers, therefore, to Brazilians speaking to Brazilians about professional education in the US.

A little about the United States Educational System

In the US, government is decentralized and the control of many public functions, such as school education, is essentially the responsibility of states and local communities³. The federal government enters the field of education when states or localities do not advocate an interest that is national, or when a national leadership is required to deal with a problem common to whole nation. As a rule, the federal function in education is based on constitutional provision (United States of America, 1787a, art.1^o), which attributes to the US Congress the power to promote the *general well-being* of the nation. In the Federal Constitution, there is nothing specific in terms of education, which must be implied in what can be understood as the well-being of the citizen, and the State Constitutions are responsible for dealing with issues of educational policy⁴.

The US Department of Education would be the equivalent of the Ministry of Education in Brazil, but, among so many differences, it is not directly concerned, for example, with issues of organization and

curriculum development, either in the proposal of guidelines or in the regulation of means and methods of implementation directly from educational policies. With the support of the US Congress, the Department of Education is limited to regulating and enforces federal constitutional rights. It exercises indirect authority through federal funding of national programs and grants, although there is no obligation for any state to accept such funds. The federal government may also propose, but cannot impose national goals, targets and norms, which are generally beyond its jurisdiction. US states and school districts⁵ are responsible for maintaining control of programs and teaching methods, and the US government is prohibited by federal law from interfering in these areas. The authority to regulate education centers, constitutionally, on the states.

In general terms, the basic education system in the United States comprises 12 years, from the 1st to the 12th before entering higher education, which would correspond to the elementary and secondary education of the Brazilian educational system. From 1st to 6th grade, students attend Elementary School; from the 7th to the 8th grade, the Middle School, equivalent to the years of Elementary Education in Brazil. In grades 9-12, American students attend high school, corresponding to Brazilian high school, and have the option of integrating them into a career and technical education (CTE)⁶.

From the moment the student finishes the so-called K-12, or equivalent to the 12 years of Basic Education in Brazil, he can follow the technical studies⁷ (2 years), professionals (4 years) and university (4 years). Thus, at the end of the twelfth year of schooling (in a high school and/or CTE institution), American students may enter a college or university. University studies or college studies earn a bachelor's degree.

While in Brazil the first level of post-secondary education corresponds to undergraduate degree, providing teacher's or bachelor's degrees, with a typical duration of four or five years (although there are also training courses for technologists and short-term sequential) in the USA the first level is called undergraduate, in courses of two or four years, preparing students either for graduation courses, masters, doctoral or others professions levels considered there with specialized requirements such as engineering, medicine and law, or for non-academic professional activities, of a more practical or applied type, or vocational. The US bachelor's degree corresponds to the four-year college and does not imply a specific professional qualification (Amorim and Schwartzman, 2014).

Studies subsequent to this title are called postgraduate or graduate education. Each of the 50 states of the North American Union controls at least one state university and eventually several colleges that have reduced tuition fees⁸ for state residents. After completing any of the aforementioned levels (except for the technical), students may take postgraduate studies: Master's (1 or 2 years), MBA (Master of Business Administration) and PhD (at least 3 years).

In the master's program, the student spends most of his time in classes, most of which are seminars, and he is awarded the title after a dissertation, which he must carry out research or the global qualification exams (comprehensive exams). Vocational schools differ widely in the admission requirements and length of the program. Medical students, for example, usually complete a bachelor's degree program in pre-medical studies at a college or university before the 4-year course at a medical school. The medical course, which in Brazil is developed at the undergraduate level with a post-graduation sequence, in the USA only happens in terms of postgraduate studies. In order to enter medical school, in addition to the Bachelor's degree, the MCAT (Medical College Admission Test) is required. Something similar occurs with the training of lawyers, where law programs generally involve 3 years of course beyond the baccalaureate level. The admission requirements are a Bachelor's degree and the LSAT (Law School Admission Test).

The MBA is a comprehensive postgraduate course in Business Administration and a very useful supplement to an earlier degree in any specialty. To enter this course, a university degree and an admission examination are required.

Some US universities consider master's degree as a first step for doctoral studies, but in others, students can be admitted directly without being required to complete the master's degree (similar to what happens in Brazil with the straight doctoral programs). Students who enroll in a doctoral program are recognized as doctor candidates; they attend some classes, but what truly legitimates them as a doctor is the development and defense of their own research, as is also the case in Brazil.

A little about Professional Education in the United States of America

A little about the Organization

In the USA, vocational education is present, although it varies according to the unit of the federation (states), in almost all public high schools (Levesque et al., 2008; United States of America, 2012a; 2012b). At the secondary level, it happens in an articulate and concomitant way with regular public schools. Since 2008, 36 of the 50 American states have already included the prospect of career education in part of the compulsory subjects for high school completion (United States of America, 2012a). Vocational education is still in the post-secondary level in courses of one and two years that qualify for the job market.

In general, in the education system, vocational education in the USA can be offered at three levels of education: high school, post-high school and community colleges, which offer courses of two to four years duration, depending on the chosen area. It can also be provided in the adult⁹ education mode. In high school, the modality is offered in so-

called comprehensive high schools, similar to the final years of elementary and high school education in Brazil, where students need to fulfill a workload with academic disciplines and can choose by some of the professional area. In these schools, elective disciplines are offered in the professional area and students can choose to follow a course only with academic disciplines or integrate, in their academic program, disciplines in the technical area. Most US high schools fit into this modality (Snyder & Dillow & Hoffman, 2009). In addition to comprehensive high schools, there are technical high schools, which also offer academic disciplines, being full-time and whose emphasis is on vocational courses. The third possibility of vocational education in high school is offered in the so-called regional or local vocational centers, schools that students attend only to vocational courses in a shift, being the disciplines, the academic area, in traditional high schools in the school district where students are enrolled, usually near their residences.

In 1998, it was estimated that half of the students in high school were enrolled in disciplines focused on professional education (Darkenwald, Kim, 1998). According to Levesque et al. (2008), there were approximately 18,000 public high schools in 2002, of which approximately 900 were technical schools (full time), 8,100 comprehensive high schools linked to regional or local centers, and 8,900 comprehensive school's high schools, which were not linked to regional or local centers. In this same period, according to Levesque et al. (2008), technical schools in general were the ones that concentrated lower-income students, with 31% to 51% of their students participating in the National School Lunch Program dedicated to poorer students¹⁰. In the private sector, in 2002, there were 6,000 secondary schools, 30% of which offered vocational education inside or outside school facilities¹¹. In the 2007/2008 school year, of all public high schools, 82% offered occupational preparation opportunities with emphasis on some professional careers (United States of America, 2012b). By 2014 there were more than 7 million high school students in 24,000 schools, who received at least 1 CTE credit and about 17% of all high school students completed CTE with high intensity, in addition to their academic requirements (Aliaga, Kotamraju, Stone, 2014, Snyder, Brey, Dillow, 2018). These figures allow, although in a partial and not definitive way, to illustrate the constant importance that professional education has been presenting, over the years, in the USA.

In post-secondary education, students have the opportunity to attend a *transitional* period (up to two years) in which they can *choose* four non-exclusive paths that can be sequential or combined: 1) strictly academic courses (four years); 2) two-year professional education courses; 3) courses that offer only professional certification obtained lasting less than two years; 4) four-year professional education courses.

In 2000, there were 6,479 institutions offering post-secondary education throughout the US; this number increased to 7,151 institutions in 2014, an increase of 10%. Among these institutions, in the same time period, the number of those offering vocational education increased

from 4,675 to 5,590, an increase of 20%. This growth can in some dimension be interpreted as a tendency to value education beyond high school, and more precisely, the one that gives certification to a professional career and entry into the productive sector, also as a determinant of the country's economic well-being (United States of America, 2017).

Until 2006, post-secondary vocational education was mostly offered by *community colleges* that provide courses of up to two years duration. As of 2006, the institutions of higher education that offer courses of baccalaureate (four years) and directed to the professional education were included¹². Differing from the Brazilian system, where vocational high school education is called technical, and the upper-level or post-secondary level is called technological, in the US, the expression Career and Technical Education is used for the sequence that begins in the high school, goes through post-secondary education in community colleges and, in certain areas, reaches universities.

In a very general way, there are four types of community colleges. The first consists of junior colleges which are schools that prepare students only to pursue a university career. Students make the first two years as preparatory and – if accepted – are transferred, using credits¹³ for universities to complete the next two years. The objective of junior colleges is to prepare students for the senior years - two years - at universities. The second is vocational/occupational schools that offer technical courses for students who have completed high school, either in comprehensive high schools or in high school. The third, and most common of them, offers as much disciplines in the academic area as in the area of vocational education. It is up to the student to decide whether, upon completing two years of courses, will pursue an academic career or enter the job market.

To be pursued, some professions require specific licenses. As these state licenses and students, upon completing the courses, must complete at least one exam in the state they intend to perform. The diversity between states is very large in terms of the requirements to regulate effective professional practice, ranging from the simple payment of a fee to the requirement of additional examinations. The community colleges already offer, in the programs of the courses, preparatory disciplines for these types of tests.

There is also an area of professional education, usually aimed at adults who, occurring outside the formal education system, is offered through courses in public, private or religious institutions (companies, professional associations, religious institutions, government institutions). These courses are often funded by the industrial and commercial sectors, with the following target groups: adults between 25 and 54 years of age and most of whom are women who already have at least one *college* course (Kim et al., 2004; Levesque et al., 2008; Amorim, Schwartzman, 2014; Snyder, Brey and Dillow, 2018).

A little about the Concept

The tradition of forming for a profession as a national interest in the US is long and well established, a fact corroborated by the adhesion of forty-six states of the federation to the so-called Common Core State Standards (CCSS)¹⁴ for institutions offering Career and Technical Education. This fact can be understood as a concern with the academic (not only technical) education of the professional education students. The very conception of professional education in the US has undergone changes. And this process is still under construction, starting with the terms used to designate it, occurring most likely due to economic demands (Gray, 2004; Meeder; Suddreth, 2012; Amorim; Schwartzman, 2014).

Firstly, designated only by terminology vocational education, professional education had as its main purpose to prepare students for occupations in which specific qualifications were required without the requirement of a baccalaureate degree - obtained in colleges or universities. But successive discussions on the subject pointed to a conception in which that preparation would take a broader approach, including the development of academic, technical, and vocational skills (Meeder; Suddreth, 2012). Its designation started to exclude, from 2006, the term vocational¹⁵ and adopt the term Career and Technical Education.

The US Constitution, as noted above, does not provide for federal support or education control. However, the government has long considered professional education to be of national interest beyond vocational occupation and has been providing federal legislation in support of the CTE. The fifty states of the US federation are independent and the organization of the education system, with emphasis on professional training, may vary from state to state. Therefore, the federal legislation that focuses on professional education basically refers to the transfer and application of financial resources, which to some extent, has already been enough to influence your configuration.

A Little About Legislation

As the main source of federal funding, states and discretionary beneficiaries, for professional education, the Career and Technical Education Act of 2006 (United States of America, 2006) ultimately delineates form, function and objectives for that country. However, until we reach the current configuration of the Professional Education Act, as the so-called Perkins IV is known, we have a series of legal acts and effects that make up the regulatory history of vocational training in the USA. We will cover here some legal traits¹⁶ that, in our view, have boosted the design of a professional education trajectory in the United States.

A first feature of this designing concerns the compulsion of formal education to secure the developmental goals and interests of the colony which, by puritanical law, the first on education in Massachusetts, made parents and the community responsible for children, leading

them to an *honest* occupation - Old Deluder Satan Act (Massachusetts, 1929). This law also encouraged colony towns to organize themselves according to local production needs, operate and finance schools. After this first initiative, a series of legislative acts directed to public education in the colony that broke with the legacy of the English crown and transferred the educational supervision of the religious to people of the own colony and among other measures, established directives to form the settlers to strengthen the local economy and independence (Morris, 1964).

The division and destination of all the land west of the 13 initial colonies - state lots, Union lots, lots for maintenance of public schools - Land Ordinance of 1785 (United States of America, 1785) - and the request of the Congress of a public university as part of the liquidation and eventual sovereignty of the territory of Ohio - The Northwest Ordinance (United States of America, 1787b) - stipulated *encouragement* to open and maintain schools, and means for an education for work, to make people able to provide for themselves and to help strengthen the nation which, had declared himself independent. In that sense, among the target territories of the referred legislations, lands were later given to establishments that prepared for agricultural and mechanical activities - Land-Grant College Act of 1862: Morrill Act (United States of America, 1862). A few years later, according to Gordon (2014), education for work receives a legal *incentive*, with the provision of the equivalent of 15 thousand dollars, for each experimental farm season, which, among others, leveraged professionalization for agriculture - The Hatch Act of 1887 (United States of America, 1887). Like the training for agriculture, at the end of the 19th century, there was already in some American cities some form of training that prepared people for the labor market, and at the beginning of the 20th century almost all students were exposed to trainings practical training in their schools, receiving some type of training for work, such as sewing, carpentry, acting in agriculture, among others (Lazerson; Grubb, 1974).

There is a legal milestone in the early 20th century with a proposition that earned fame as the Davis Bill, by congressman Charles Davis, from Minnesota, to allocate federal resources for agriculture and home economics education. The project generated much controversy, and then, in 1910, Senator Dolliver brought a revised version of that proposal to the Senate. However, the National Society for the Promotion of Industrial Education, which at that time represented an emerging area, objected to the Dolliver-Davis Bill. Senator Dolliver passed away that same year, but his aspirations were incorporated into a proposal put forward in 1911 by a Vermont senator, Carroll Page, who stood out as the first federal initiative, reportedly to support vocational education by proposing appropriations federal for the states, becoming known as the Page Law Bill.

Gordon (2014) points out that the Bill of Laws envisaged a division of funds into states that held separate schools for blacks in proportion to those attending without distinction of race, and also providing night

schools. The bill was amended in the Senate in 1912, arguing that training for farms, commerce and domestic activities should begin in high school. The Page Law Bill was not passed in Congress.

The first federal legislation on vocational training, but still pronounced in vocational terms, was enacted in 1917, providing funds to support this educational modality in the states with the objectives of improving people's income, regulating vocational education, protect national security and reduce unemployment (United States of America, 1917). This first legislation on vocational education was also known as the Smith Hughes Act. Over the years, vocational education has undergone several modifications, incorporated different themes and activities, the profile of incomes and outgoing has also been changing and, thus, the legislation was dynamized in the attempt to meet the demands that are renewed, and in this scenario more and more laws were enacted (Kaestle; Smith, 1982).

Following the publication of the Smith-Hughes Act, federal financial support was extended to the vocational-technical education modality, hitherto limited to agriculture, industry, commerce, and home economics, to include improvement in math, science, and language education as well. In addition, as it was a period of war, additional funds were directed to preparing people for professions related to the national defense strategy (Dortch, 2012).

In 1963, the Vocational Education Act (United States of America, 1963) introduced *accountability* for equal access for the low-income population and for those with disabilities, as well as increasing the amount of federal resources earmarked for vocational training and provide extra resources for more *practical* programs involving workplace experience and so-called demonstration programs. Five years later, in 1968, the National Council of Vocational Education was established, whose responsibility was to collect, manage and disseminate information about the programs and encourage adherence to professional education.

The Professional Education Act, in 1984, was renamed the Perkins Law of Vocational Education (United States of America, 1984), establishing programs more focused on the labor market. There was inclusion of the technical area, and not only the vocational area, which was very emphasized in previous legislation. This legal provision has extended access to disabled beneficiaries, housewives, incarcerated persons and the disadvantaged populations both socially and economically.

In 1990, the law was revised and replaced by a second version (United States of America, 1990), providing guidelines for coordination and organization of programs offered by high schools and post-secondary institutions and for targeting of federal financial resources. According to Dortch (2012), the federal government at that time, with Perkins II, started to finance 25% of the funds for vocational training. In relation to the organization and curriculum development, it fomented the establishment of prescriptions regarding the sequence of disciplines in

the courses. This version ensured greater flexibility to the application of financial resources because it revoked the obligation with certain populations.

In 1998, a third version of the Perkins Act (United States of America, 1998) came into force, legislating a strong linking mechanism between professional education and performance indicators. The main changes implemented in the context of vocational training were: a) greater emphasis on academic disciplines and the creation of quality standards for technical training, as they already existed for mathematics and natural sciences; b) coordination between post-secondary institutions, state labor markets and professional training; c) greater flexibility in the use of financial resources and direct transfer to local institutions; d) creation of accountability systems.

Since the 1990s, states of the federation should gather information about student performance in the vocational education modality. However, this *requirement* was not institutionalized. In addition, a system of incentives and punishments was created to *reward* states that would improve the performance of their students.

The promulgation of the fourth version (United States of America, 2006) further highlighted the emphasis that professional education has in the country, including in the list of institutions responsible for this type of training, the colleges (undergraduate). In addition, it strengthened the role of states in the organization and development of educational programs.

Most of the resources of this legislation are passed on through grants to the states. Some of the requirements for receiving funds are related to coordination between high school and post-secondary institutions, accountability systems, performance targets and sanctions/incentives for its compliance (Dortch, 2012).

At Perkins IV, funds are segregated to secondary and post-secondary and non-explicit institutions: partnerships with the private sector, including cost sharing, can be operationalized; how the funds passed on to the states should be distributed to local governments; how each state should define its goals of participation and accountability; accountability systems to improve students' academic performance; and how to develop technical skills and increase the employability of graduates in vocational education based on clear goals common to all States.

Despite its explicit ambitions in legislation, the role of the federal government in vocational education is small. Federal onlendings always need to be supplemented with resources by state and local governments. The participation of the federal government can be expanded if other forms of contribution, other than direct transfer, are also considered, such as scholarships granted directly to students and grants, and especially pell grants¹⁷ (grants that do not need to be reimbursed) for low-income students in post-secondary courses. Federal resources are also targeted at populations at risk of school dropout, as well as those whose English is not the native language (English language learners).

The changes in the nomenclature of the Professional Education Law apparently correspond, in part, to the process of constructing the conception of this type of education in the country. Initially, the emphasis was on a concept of vocation tied to the formative process (Carl D. Perkins Vocational Education Act, Perkins I). It is observed that the emphasis is shifted to process-related training in applied contexts (Carl D. Perkins Vocational and Applied Technology Education Act, Perkins II). In a third version, aspects of academic, technical and labor market knowledge are also emphasized, all of which are now targets of *performance indicators* (Carl D. Perkins Vocational and Technical Education Act, Perkins III). And the most recent reauthorization of the Carl D. Perkins Act series, in turn, comes to consolidate this movement, including post-secondary education, and in addition, is also related to the Elementary and Secondary Education Act - ESEA¹⁸ (United States of America, 1965), trying to establish more *academic* criteria for measuring performance and passing on financial resources. The terminology used in Career and Technical Education appears to be a concern to train for a professional career (Carl D. Perkins Career and Technical Education Improvement Act, Perkins IV).

In 2012, in an attempt to raise the quality of vocational education in the country, the US Department of Education presented a proposal that emphasizes the importance of accountability systems referenced in terms of student performance and education systems, alignment and consonance between teaching programs for professional education and the demands of the market and industrial sectors, prescriptions of *innovations* and greater collaboration between institutions of high school and post-secondary education. This proposal represents, to some extent, a reform for Perkins IV (United States of America, 2012b).

The proposed reform provided clear expectation for high-quality programs, and for that, it prescribed: a) guidance to states in establishing high-quality programs; b) alignment with the private sector; c) training the states to identify the demands of the sectors in which the professional education programs should be focused; d) conditions for collaboration between high school and post-secondary education institutions; e) autonomy to the states to select and finance professional education programs that respond to the demands of the regional market; f) definitions common to education systems and performance indicators; and (g) *incentives* for those who perform best.

Final Considerations

Systematizing in a few words the experience of exchange with the US, it is possible to say, first, that all educational systems have social, historical and political constraints, among others, and therefore, *results* of one do not apply to another, which can be analyzed, therefore, are the processes that are established in these systems. With this consideration, based on comparative studies, it is remarkable, in addition to the striking disparity, in absolute and relative terms, the amount of

resources invested in professional education, the active participation of the Judiciary, the Legislative and the private sector in matters related to supply, financing and organization of professional education, according to the values that guide the American society.

The importance of professional education in strengthening the US economy is highlighted in a report published by the government (United States of America, 2012a) and corroborates the thesis that the configuration of professional education in that country illustrates the force that moves it. That is, the productive sector and the US market need to be in constant movement, being the education fundamental for this, deserving attention of the states.

The history of changes in legislation also shows a tendency to value, but also to regulate strongly the professional education in the USA (Grubb, 2006; Grubb; Lazerson, 2004; Levesque et al., 2008). In this sense, there is a strong movement to pass legislations requiring large-scale evaluations and monitoring of students' performance, whose justifications relate the performance of US students in national and international assessments and competitiveness for the market (Carnevale et al., 2011). The concern with accountability and changes in the CTE culminated in the establishment of norms and parameters for vocational training and the establishment of the College and Career Readiness first as a concept and then as a procedure for results-based and competency-based vocational education (Conley, 2015).

The immersion in the field of research in the US seems to show that, in the nation that propagates liberalism as a synonym of freedom for the world, the configuration, purpose, results and financing of professional education are imperatively subject to regulation and control, aiming at precisely bypassing the social damages of the liberal policies so valued in that country; in particular the increasing inequality in the distribution of income. The cycle of accumulating debt during the period of study and, after graduating, finding a job to pay off debts is very common among young Americans. These end up trying to get a certification, which includes some training for the job, whose conclusion is followed by the task of finding a job or something similar that offers a source of income, having to deal, with the burden of a student loan. Probably, therefore, there is an appreciation in the country for professional paths made possible by alternatives to the university or at least certify for work and, while maintaining the opportunity to continue in university studies, guarantee ways of defraying their expenses to people. In this sense, vocational training is a concrete alternative for entering the labor market highly considered and encouraged (Levesque et al., 2008; Dortch, 2012; Snyder; Brey; Dillow, 2018).

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Notes

- 1 Project funded by Fapesp under process number 15 / 00957-9.
- 2 Fieldwork for this research occurred in the second half of 2015 and the first half of 2016, by immersing the team of researchers in two vocational education institutions. In the Brazilian context, the organization and curricular development of a public school of Professional Education of the state of São Paulo was analyzed, and in the US, a State School of Career and Technical Education (CTE). In the US context, 12 teachers, one administrator, one pedagogical coordinator and four students were interviewed. The interviews took place in the format that Patton (2002, p. 342) calls “[...] informal conversational interview” with a view to achieving greater flexibility and informality and opening up the possibility of obtaining unanticipated data. The interviews were carried out during observations of the activities carried out in visits to the institution, as recommended by Patton (2002). We visited the workshops, classrooms and rooms of the teachers of the technical center and had access to student projects and projects, as well as notebooks.
- 3 The United States of America forms a federative republic. Each unit of the federation (or states) is divided into counties (which are equivalent to administrative regions), and these in cities (which would be equivalent to the Brazilian municipalities).
- 4 The governance structure of US education has a high degree of decentralization and a limited role for the federal government. According to Conley (2003), there are historical factors, which explain the fact that US education is decentralized, which refers to the time of colonization. The country was governed in a decentralized manner, being constituted by thirteen colonies. Education in the colonies was initially the responsibility of religious agents, who opposed any external intervention. Funding for education, choice of curriculum, teacher training, and structuring of systems have always been local. As the states of the confederation were being consolidated, education was being outlined in their constitutions.
- 5 In the US, school districts are responsible for administering all public schools in a given region.
- 6 Career and technical education, in high school, covers the teaching of skills needed in specific occupations or occupational clusters, as well as non-occupational activities, including domestic and consumer economics (i.e. courses that prepare students for roles outside the paid labor market), as well as general labor market preparation (i.e., courses that teach supporting employability skills such as verbal expression, text interpretation and use of digital technologies).
- 7 Courses completed at a 2-year college are generally transferable for credit at a 4-year college or university.
- 8 In the USA there is a public education policy that is not free.
- 9 This is dedicated to professional education courses that occur outside the formal education system and the beneficiaries are largely adults seeking to acquire, upgrade or improve their skills in the job market. These courses may include courses offered by the employer, professional or certified technical courses.
- 10 Related data can be found at <<https://nces.ed.gov/programs/coe/ataglance.asp>> and <https://nces.ed.gov/programs/coe/indicator_clb.asp>.

- 11 In US, as in Brazil, there seems to be a tendency toward privatization (not to mention charter school), at least that's what the National Center for Education Statistics (NCES) data tells: from 2000 to 2014 the percentage of US institutions, for profit, increased from 38% to 47% among those offering vocational education. US Department of Education, National Center for Educational Statistics, Integrated Postsecondary Education Data System (IPEDS), Institutional Characteristics (IC) and Complements, 2000-01 and 2014-15. Available at: <<https://nces.ed.gov/surveys/ctes/tables/>> and <<https://nces.ed.gov/surveys/ctes/tables/P141.asp>>.
- 12 This occurs with the enactment of the law Perkins IV (United States of America, 2006), which among other measures, reinforces the importance of vocational education *in and for the USA*, including not only the high school, as well as the colleges higher level in range of institutions offering this type of training.
- 13 In the USA, courses discipline credits, are based on weekly study hours, credit hours. The transfer to other institutions, from a college to a university, for example, is based on the utilization of credits of the disciplines.
- 14 This is the standardization of learning objectives for students at each level of education. Governors of the states have not worked since 2007 to formulate common parameters. Governors and education officials, through their representative associations, the National Governors Association for Best Practices (NGA) and the Council of Chief State School Officers (CCSSO), led the development of these parameters. The implementation of CCSS, including teaching methodologies and elaboration of didactic materials, was in charge of the states and municipalities.
- 15 Legally, this change will take effect with the approval of the so-called Perkins IV Act (United States of America, 2006) which, by amending the Perkins III Act, emphasizes the development of *more comprehensive* academic skills of high school and post-high school students who choose to enroll in programs for a career and vocational education.
- 16 Our claim goes beyond the scope of a review of the history of US education.
- 17 Pell Grants were created by the Higher Education Act of 1965. These grants are funded by the federal government and are not like loans as they do not have to be repaid.
- 18 The Elementary and Secondary Education Act - ESEA (United States of America, 1965) was signed by President Lyndon Baines Johnson, making mention of the *full educational opportunity as our first national goal*. ESEA has offered, above all, new subsidies to districts serving low-income students. On January 8, 2002, then-President George W. Bush signed one of many ESEA reauthorizations known as No Child Left Behind - NCLB (United States of America, 2002). NCLB has increased the federal role in education, mainly because it has instituted strong mechanisms of accountability for schools. Schools became responsible for the academic progress of all students, and those whose students had low results would lose federal aid. In December 2015 President Barack Obama approved Every Student Succeeds Act - ESSA (United States of America, 2015) that reauthorized ESEA, the National Education Act.

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