Abstract
To talk about technical education forces us to cross several scientific fields - history, sociology, economy - and to contextualize the information regarding the History of Education. The inheritance received from the corporative system, the share of responsibilities between public and private, the social and economic expectations, its relation with development and the difficult relation between national and international are some of the fields that we must analyse when we aim to create a path, brief in its dimension but stretched in time. To also insert a comparative concern between Portugal and Brazil, even if punctual, demands a synthesis of the nuclear ideas marginalizing the accessory. This article aims to, in a chronology going from the 18 century to the late 20th, specify the changes in the philosophy, in the investment, in the social credibility and in the economic necessity.
Key-words: technical education, professionalization, industrial capitalism, neoprofessionalism, Portugal, Brazil, secondary education.

ENSINO TÉCNICO: UMA NECESSIDADE OU UMA FALÁCIA?
NOTAS PARA A COMPREENSÃO DA FILOSOFIA DO ENSINO TÉCNICO EM PORTUGAL E NO BRASIL

Resumo
Falar de ensino técnico obriga a cruzar vertentes científicas diversas - história, sociologia, economia - e contextualizar a informação no âmbito da História da Educação. A herança recebida do sistema corporativo, a partilha de responsabilidades entre público e privado, as expectativas sociais e económicas, a sua relação com o desenvolvimento e a difícil relação entre o nacional e o internacional são algumas das vertentes que importa analisar quando procuramos fazer um trajeto breve na dimensão mais alargado no tempo. Inserir ainda uma preocupação comparativa entre Portugal e Brasil, ainda que pontual, exige uma síntese das ideias nucleares marginalizando o acessório. Procura este artigo, numa cronologia que vai do século 18 aos fins do 20, elencar as mudanças de filosofia, de investimento, de credibilidade social e de necessidade económica.
Palavras-chave: ensino técnico, profissionalização, capitalismo industrial, neoprofissionalismo, Portugal, Brasil, ensino secundário.
ENSEÑANZA TÉCNICA: UNA NECESIDAD O UNA FALACIA?
NOTAS PARA LA COMPRENSIÓN DE LA FILOSOFÍA DE LA
ENSEÑANZA TÉCNICA EN PORTUGAL Y EN BRASIL

Resumen
Hablar de enseñanza técnica obliga a cruzar vertientes científicas diversas - historia, sociología, economía - y a contextualizar la información en el ámbito de la Historia de la Educación. La herencia recibida del sistema corporativo, la partición de responsabilidades entre público y privado, las expectativas sociales y económicas, su relación con el desarrollo y la difícil relación entre el nacional y el internacional son algunas de las vertientes que importa analizar cuando buscamos hacer un trayecto breve en la dimensión pero ampliado en el tiempo. Insertar aún una preocupación comparativa entre Portugal y Brasil, aunque puntual, exige una síntesis de las ideas nucleares marginalizando el accesorio. Pretende este artículo, en una cronología que va del siglo 18 a fines del 20, especificar los cambios de filosofía, de embestida, de credibilidad social y de necesidad económica.
Palabras-clave: enseñanza técnica, profesionalización, capitalismo industrial, neoprofesionalismo, Portugal, Brasil, enseñanza secundaria.

L'ENSEIGNEMENT TECHNIQUE: UNE NECESSITE OU UNE ERREUR?
ASPECTS POUR LA COMPREHENSION DELA PHILOSOPHIEDE
L'ENSEIGNEMENT TECHNIQUE PORTUGAL ET AU BRÉSIL

Résumé
En parlant de l'enseignement technique on nécesite d'indiquer plusieurs aspects scientifiques - histoire, sociologie, économie - et de contextualiser l'information dans l'histoire de l'éducation. L'héritage du système d'entreprise, la répartition des responsabilités entre les attentes de l'état et des privés, sociaux et économiques, leur relation avec le développement et les relations difficiles entre le national et l'international sont quelques uns des aspects qui doivent être considérés lors de la recherche pour faire un cheminen bref dimenson, maiséten du dans le temps. Avoi régallement une préoccupation comparative entre le Portugal et le Brésil, bien que parfois, nécessiteune synthèse des idées de marginaliser accessoire nucléaire. Recherche à cet article, dans une chronologie qui va du 18ème siècle à la fin du 20ème siècle, la liste des changements dans la philosophie, l'investissement, la crédibilité sociale et une nécessité économique.
Mots-clé: enseignement technique, professionnalisation, capitalisme industriel, neoprofessionnalisme, Portugal, Brésil, enseignement secondaire.
Introduction

If it is true that it was the belief in the benefits of the technical and professional education over the economy and employment that more sustained the policies that support it and made it grow, mainly when the governments adopted the functionalist theories and, particularly, the theory of human capital, it is also in the midst of that relation between education and economy that we can find some of the main presupposes of the fallacy of professional education to return to Philip Foster’s expression. (Azevedo, 200, p. 81)

Technical teaching, considered in the various professionalizing fields - agricultural, industrial, commercial, services - has been studied, both in the field of sociology of education, as in the field of sociology of work. Simultaneously, it has been historically emphasized in the time of the construction of school and, particularly, in the implementation of the Modern State.

These different focuses show, above all, the multiplicity of perspectives but, at the same time, the analytic complexity that results from the different inter and trans disciplinary contributes. Immediately, the sociologic contribution forces us to insert this sub-system in the key objectives of school, that has the role of integrate the students in the social context and also of differentiating them to be able to accomplish the specific role designated by society. The cultural codes transmitted are nuclear to guarantee the social cohesion, the civic participation, in short, the defence of the established order. The qualification as human resources allows the supply of professionals to the work market, capable of guaranty the economic expansion.

Historically, we know that in periods of expansion and of major technological alterations it was requested from school, from the educational system, to prepare those armies of qualified technicians and professional experts to feed the development. But when the retraction or the crisis took over the economic statistics, the role of this subsystem was always questioned, although it was always accepted that it was still the school the space for requalification, in order to answer to the new priorities dictated by the political power.

This apparent contradiction - between the urgency of the economic changes and the lateness of alterations or of the educative results - gave the theme to the political debates, to the pedagogical discussions, to the relations between school and economy and, correlatively, to the definition of the technical teaching role in the volatile context of ideas and changes.

Focusing on the more stable content, we will try to identify, in the long time period of the 19th and 20th centuries, the main marks that characterized the technical teaching path, mainly in Portugal, but including some references to the Brazilian professionalising

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1 The author refers to Foster (1978).
secondary education, from the end of the 18th century to the end of the 20th. This large
time period takes us from their assistance purposes, when it was ensured the reinsertion
by qualification or professionalization, to its mischaracterization with regard to the
contemporary neo professionalism. Between the two moments remain the words, the
ideas, the purposes that were historically attributed to it in a conjunction where, almost
every time, the State decided a great deal, dialogued or shared very little and always had
the first and last words.

From the corporations extinction to the action of the State

To each craft corresponded a corporation, to each corporation a statute, or
ruling [...] that is the private laws that ruled each craft. [...] If specificity was
the base of differentiation between crafts, the possession of the art divided
internally the masters, the officials and the apprentices. All kinds of art need
an initiation. Since the beginning, the examination of mastery is decisive to
the official passage from official to master [...] and the apprenticeship will
be increasingly more regulated in time. (Pereira, 1988, p. 45)

This presumption is important because, in certain countries, the corporative system
force guaranteed, for a long time, an adequate and certified formation without any
intervention from the State. Moreover, in liberalism, the significant force those corporations
had at its disposal in terms of social and political influence made necessary to delay its
extinction, only made official in 7th may 1834. For example, the French case is very similar
to our own since:

La disparition brutale et effective de ce quadre réglementaire coutumier a
livre à la seule loi de l'offre et de la demande la régulation de la formation
professionnelle des jeunes et des conditions de leur embauche, provoquant
ce qui a été appelé tout au long du 19e siècle une crise de l’apprentissage.
(Troger, 2006, p. 75-76)

The absence of the system of professional learning guaranteed by corporations, as
well as the liberation of work, entails the creation of alternatives, in a time when the Nation
State was inclined to expanse its tentacles - functions - and it was germinating the idea of
the indispensable articulation between educations, work/profession, progress and creation
of wealth. It was a long time before the demystification of this functionalistic relationship.
Obviously other countries tried to find ways of minor dependence from the State: in
Germany, England, Italy or Denmark the great majority
of workers and paid employees
started to be trained by the companies or in places perfectly connected with the
companies. The massive schooling of the professional and technical training of youngsters
in the educational system was a Portuguese option - and French, for example - but it is not
the general rule.

However, this specificity makes us focus on the role that the political power will have
in the setting of formative and professionalizing alternative. Despite some initiatives made
by the Marquis of Pombal in the end of the 18th century - namely the preparation of more informed tradespeople and more capable industrial technicians -, it was only after the definitive installation of Liberalism and the extinction of corporations (1834) the sequence of measures globally articulated takes place, heading for that alternative to the corporate system.

There are important key ideas that characterize the path taken, showing the consciousness of the role that the industrial education, and technical in general, could and should have in the national context.

The first is the necessity of instil more vitality in the economic development by school initiatives that prepared industry, agriculture and commerce executives. The late 18th century initiatives, in the field of commercial education, give more importance to the circulation of goods than to their production. Clearly, it is the attempt to protect spaces, to increase the commercial services quality, to monetize products and to take advantage of our belligerent marginality in order to balance our public expenditure and revenue. By highlighting the Lesson of Commerce initiatives or the generous Pina Manique measures (which introduced the manual labor in primary schools, the physical work and the industry teaching in Casa Pia) we want to stress that the productive Country was left at the mercy of the foreign technicians’ sufficiency that visited us in the end of the seven hundreds and beginning of the 19th century, and also the country was waiting for the Liberalism to bring a new vision to the educative investment to be able to form specialized workers in the various fields of economic activities. The exasperating low ness of instigation of Liberalism in Portugal post ponded, first to 1836 and later to 1852, the consistent initiatives, delaying until 1884 the wider reach of the industrial school network. Simultaneously, as we already mentioned, the corporations’ extinction eradicated a formative and learning structure that functioned for centuries.

The second idea is linked with the need of a coherent school network, logical and effective, to substitute those spaces of formation and regulation. Although the State inherited that new role, the initiatives that institutionalize the creation of schools don’t have the desired impact because, besides not always working - reality always exceeds the norm - some are closed due to shortage of students; they lack a common spirit of orientation. This absence is also due to a nonexistent Instruction Ministry that should be durable and not sporadic, capable of promoting the vertical and horizontal articulation of the formative system. Vertical due to the introduction of primary instruction as minimum habilitation for the admission in the technical school, or for the incorporation of manual labor in the first learning cycle and also for the acceptance of the specializing role those industrial and commercial institutes could have. Horizontal for the dynamic role that should have in the celebration of protocols with private or state companies in order to give an adequate practice to the students, future workers in various economic sectors.

In 1852 the initiative of Fontes Pereira de Melo of creating the industrial education, and the clarification of the role of institutes and certifying the social meaning of the
frequency of the different degrees of education, was the beginning of a process that longed from the State a more dynamic and coordinative role. Almost every time, it was the Ministry of Public Works, Commerce and Industry that took forward those initiatives, in a time when the major investments were, above all, applied in the creation of railway, road and port infrastructures.

The third idea is necessarily connected with the growing concern in looking at the world with both feet firm on nationality. For instance, in 1864 João Crisóstomo de Abreu e Sousa established the first schools of industry in the locations that were the most deprived of specialized workers - Covilhã, Portalegre and Guimarães - safeguarding the possibility of appearing others “in parts of the kingdom that need them due to their manufacturing importance” (Arroyo, 1911, p. 5). Or when in 1884 António Augusto de Aguiar, tried to complete the roles of the museums and schools, defending that “the schools created near the Museums will be inside their premises, subordinated to their board; the courses will have a useful and nationalist outlook, inspired by our folklore; and the Museum board will try to establish lectures or free industrial courses, related with their purposes in general” (Ibid., p. 12). In the same direction, Emídio Navarro, in 1886, when legislating for the first time the feminine professional education, encouraged the teaching of bobbin lacework in the Peniche School. The organization of education decreed in the 1890’s, specially the one from 1891 and 1893, defended that one of the functions of industrial schools was “to promote the organization of elementary professional courses of the local small industries” (Ibid., p. 23). The first decade of the 20th century didn’t bring any changes to this articulation between the Portuguese space and the world.

These ideas, that cross transversely the legislative initiatives from the eight hundreds, coexist with manifestations of sadness towards the formative incapacity of education, namely the industrial education. For some, the responsibility should be given to the undemanding national bourgeoisie:

For the portuguese industry there are no foreign markets, so to speak; we have not established what is called an industrial nation. And as for our internal market, we can also say that the competition disappeared, because of its diminutive proportions and for of the protective tariff, prohibitive in many cases, and also due to other circumstances of our economic and financial environment. Therefore, it is understandable that the Portuguese industry made no or almost no complaints to the State about professional education. The protective tariff was enough to live comfortably. (Arroyo, 1911, p. 17)

For others, in a more coherent way with the internal development of the system, the motives should be searched in the legislative fragilities of the various diplomas. One of the most mentioned is about the school teachers:

In Portugal we don't give training to the teachers: we did not establish the normal teaching. Teachers with different backgrounds and from different schools came from abroad, but they didn't establish the normal school, to
train future Portuguese teachers. They were put in various industrial schools, where they teach what they brought from their countries, in a complete and almost general arbitrariness and lack of connection, pedagogically and usefully considered. Therefore if it is not nationalize the industrial instruction or the art industries.² (Colecção Oficial de Legislação Portuguesa. Ano 1898. Lisboa: Imprensa Nacional, 1899, p. 820)

Other aspect strongly state is the impossible distance between the school and the company or between the State and the private initiative:

In the interest of the national fomentation, it is convenient to stimulate the private initiatives, leading them to better understand the importance of industrial and commercial school as a work tool, and to form beforehand their demands and to have leadership functions of technical teaching in industrial school. (Ibid., p. 820)

The type of teacher and the concept of school were fundamental for the consciousness of the socio-economic reality of the late 19th century, which involved the formation of workers with certain characteristics:

The professional education must train two classes of workers: those who work under the current conditions of the locality, under the contemporary standards and types of production and that are considered good; and those whose labor should be diverse, more perfect or complete than what is done at present. In the first case, we will be able to find amongst us skillful masters; in the second, on the contrary, it will be necessary to find them in the countries where the manufacturing is more developed. (Ibid., p. 821)

The constant change of program content and the deficient accommodations are also listed as factors to justify the lower productivity of the national industrial education system:

Until today we have not given the proper importance to the issue of the construction of the school house or workshop, issue that in other nations is regulated, including lighting, heating, ventilation, air cubing, furniture hygiene, hygiene exercises, students' amenities, etc. (Ibid., p. 822)

Culminating this pyramid of difficulties was the issue of social certification of the qualification obtained. The proliferation of courses and schools, public or private, collided in a labor market with asocial-professional pre-capitalist characterization. Therefore one of the constant concerns of the legislative initiatives was “the assurances and advantages to be provided to the students of industrial schools, in order to increase school' attendance, make the students like school and hold them in the country, after their studies are completed” (Ibid., p. 820).

Inventoried the internal or external reasons that prevented the effective use of the existing school network in the late 19th century, it was necessary to have a scientific framework for analysis, this way ensuring that proposals resulting from an effective

² Decree of 24th november 1898, annex report.
inventory will allow inflecting or creating paths, embodying consensual solutions. This is the technical and economic inquiry plan’s perspective for the remodeling of the industrial and commercial education, launched in the end of 1898.3

Despite the criticism that this initiative had and the absence of results due to the incapacity of functioning of the responsible team, the aspects identified as essential for an effective alteration of the industrial education system, shows us the awareness of the main issues present at the time of the Implantation of the Republic and helps us to understand the reforms that quickly took place4 to break the inertia and to overcome the delay of the Country, despite the multiplicity of initiatives since 1759 to 1910.

In this quick outline of some of the ideas presented during the 19th century, it is clear the defense of the theories that anchored the development of modern models of school education in the growing industrialism. It was evident the capitalist way of production and it was left to the state initiatives to provide training for the workers adjusted to the capitalist development. In this light, mass schooling, industrial society and market economy should go hand in hand and have complementary purposes, or, at least, properly articulated purposes. The later interpretations, particularly of Marxist theories, the school as a form of reproduction of social relations of production, or of institutionalists, J. F. Meyer and Ramírez (1992), for example, mitigated such direct and functionalist relationship, but, obviously, they did not come in time to affect the idea of school in general and of technique, in particular, during the eighteenth century.

Naturally, with the inherent delay of a recent independence (1822) and the existence of slave labor for more than three centuries, in Brazil was less visible the concern of forming hand labor to an economic system of industrial and financial capitalism in this period, the 19th century and early 20th. The priority had to be the regular primary education, although it is important to mention that only with the 1934 Constitution, made during the dictatorship of Getúlio Vargas, was instituted compulsory primary education5, reserving the training mainly for welfare purposes. In the mid 1840’s, for instance, there were made ten houses for pupils and craftsmen in ten provincial capitals, with the aim of “reducing crime and vagrancy” (Cordão, 2005, p. 44). In the following decade, the government “created special places to house abandoned minors and orphans, the Childhood and helpless minor’s asylum (Ibid., p. 44). This welfare strand remained until 1906, when professional education became part “no more of the organs of social assistance and protection to and abandoned children, but of the Ministry of Agriculture, Industry and Commerce” (Ibid., p. 45). In the first decade of the 20th century there are

3 This is the plan created by the decree of 24th November, 1898.
4 We are referring, for example, to the decree n. 5.029, of 1st December, 1918, about the organization of industrial and commercial education, from the initiative of secretary of State João Alberto Pereira de Azevedo Neves, whose justifying report is used and quoted in this article.
5 With this institution, reiterated in the constitutional revision of 1937, there were several safeguards for its non-compliance: the solidary financial contribution of families and the exception of compulsory when there were no nearby schools or when the parents were extremely poor. Moreover, these were identical safeguards to the ones in the Portuguese legislation in the 19th century and even in the 20.
multiple initiatives that combine the training of skilled workers with the development of productive sectors and that create network of schools for apprentices and craftsmen in various regions of the country. In 1910 schools were created during the mandate of the president of the Republic Nilo Peçanha; schools that were "more interested in the industrial area [...] which became the first real step towards the establishment of a federal system of professional education in Brazil" (Ibid., p. 45).

**From the functionalist expectation to the globalized training**

The 20th century will bring us new ways of thinking about the role of technical education in the context of changes both in the productive sectors, and in the qualifications field, and also of the role that States can and should have at the intersection of the previous vectors.

Looking at the so-called productive sectors, new models of national development have emerged, generally characterized as Fordism, neo Fordism and post-Fordism. Depending on the level of each country, weaned certain kind of professionalization, and the nearer we get to development levels closer to our own, the more we need to discuss the contents of the training, to compare the role of secondary school with technical education, to select the contents that’s should be assigned to each, or even, ultimately, to decide whether it is necessary to have two subsystems.

The period between the two world wars and the phase after the second until the early 1970’s was a time of great development, a time of constant request for skilled workers for the different sectors, and of alteration of the contents, often indexed to technological changes, and there was an almost exclusive role of the state initiative, or at least requiring its supervision to ensure the credibility of the certification. Mainly in the last quarter of the 20th century, this role gave way to a more global view of educational systems, with the creation of international indicators that started to legitimize externally the new approaches, new curriculums and even new contents.

Two aspects seem relevant to put in perspective the portuguese circumstances and even the Brazilian, throughout the 20th century. First: as long as the concept of nation-state prevails, or whenever it assumes an interventional part, educational policies will be near the "specific economic benefits of education, through the rapid expansion of human capital theory" (Hufner; Meyer; Naumann, 1992, p. 348). Second: when this concept develops towards its modernization, even if in conflict with the paradigm of single and interdependent world, or with the concept of a new order of the economic world, education systems will be mainly a "crucial factor of the national progress and of the equality among nations" (Ibid., p. 393) making internal decisions lose territory, pressured by international references of credible scientific organizations.

Now that the outline is made, it is important to verify how these changes took place, between the 1ª Republic and the end of the Estado Novo.
In the early 20th century the confidence in the role of the education system is restored, believing that "in the technical school is the strength, the right and the future of people"\(^6\), although it is also voiced the need for "greater plasticity of its organization."\(^7\) It clearly remains the idea that it was necessary to train producers for the industrial work in order to guarantee the production of wealth that could approach us to the more developed countries, but also the concept of physical work begins to be associated with intellectual:

It is necessary to give what is due to the working class, but it is essential to instruct appropriately first [...] progress has a social unity, an essential factor which is the worker, whether is the worker with calloused hands for rude labor, or the worker who spends his hours in scientific research\(^8\).

(Diário do Governo, n. 263, p. 809)

On the one hand, if it was intended an efficient response to the continuous criticism mainly transmitted by people connected to the industry, on the other hand it was visible the concern in reorder the network and in introducing a new philosophy in the way of thinking about technical education:

In the midst of the First Republic, the deficient training of human resources in industry continued to be noticed and to be one of the obstacles to industrialization. The engineer José de Oliveira Simões, generally well informed about the industrial issues, portrayed the situation as follows: the lack of general and specialized instruction explains the disability that can be found in our workshops, in what regards management positions. Although the tendency is to reduce the national deficit, the staff of masters and foremen is mainly foreign. (Rodrigues, 1999, p. 274)

By trying to respond to these criticisms, the Azevedo Neves reform of 1918 rearranged the network and altered the aim of technical education, dissuaded the enrollment in high schools, facilitated the recruitment of teachers, heard interlocutors more regularly - both from economic and education sectors\(^9\) - and expanded the network of technical schools, from 30 to about 50 during the 1st Republic.

The numbers help us to understand that the school population began to consider the importance of attending technical education, even though there was a social gap between the dignity of High school and the Technical School.

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\(^{6}\) Report of the technical education reform of 1\(^{st}\) december, 1918.
\(^{7}\) Report of the reform of 24\(^{th}\) december, 1901.
\(^{8}\) Report of reform, 1918.
\(^{9}\) Following the reform it was created a Teachers Association of Industrial and Commercial Schools - Apeic - that became an interlocutor to influence subsequent amendments.
Table 1
Frequency on High School and on Technical Education (1919-1930).

<table>
<thead>
<tr>
<th>School years</th>
<th>High school</th>
<th>Technical education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1919-1920</td>
<td>13 748</td>
<td>8 820</td>
</tr>
<tr>
<td>1920-1921</td>
<td>13 203</td>
<td>8 892</td>
</tr>
<tr>
<td>1921-1922</td>
<td>12 930</td>
<td>8 832</td>
</tr>
<tr>
<td>1922-1923</td>
<td>13 434</td>
<td>9 452</td>
</tr>
<tr>
<td>1923-1924</td>
<td>14 337</td>
<td>10 078</td>
</tr>
<tr>
<td>1924-1925</td>
<td>15 105</td>
<td>11 756</td>
</tr>
<tr>
<td>1925-1926</td>
<td>16 766</td>
<td>13 016</td>
</tr>
<tr>
<td>1926-1927</td>
<td>18 411</td>
<td>14 446</td>
</tr>
<tr>
<td>1927-1928</td>
<td>19 011</td>
<td>15 812</td>
</tr>
<tr>
<td>1928-1929</td>
<td>17 614</td>
<td>16 521</td>
</tr>
<tr>
<td>1929-1930</td>
<td>17 829</td>
<td>16 391</td>
</tr>
</tbody>
</table>


Initially, the rise of Salazar and the institutionalization ofEstado Novo brought few alterations. The 1931 reform, for example, tried to simplify the system and accentuate the professionalizing feature of education, although it also tried to include new activities in the courses - commerce, glass, mechanics, chemistry and electricity. This intervention, still inconsistent, has also to do with the existence of different opinions between educational ideologues:

In 1934, in the Congress of the National Union were manifested differences in the notion of both the education and the actual technical education, symptomatic of the lack of a clear official position. In fact, in 1936, the new Minister of Education did not think of technical education as a tool for the development of the country. (Cardim, 2005, p. 10)

Even with some uncertainty, the number of schools stabilizes: 52 in 1926, 47 in 1935, 51in 1941, as the number of students grow: about 14,500 in 1926 and in 1942 close to 35,500, which translates into "over-occupancy of the premises and an over-exploitation of the weak equipment workshops" (Ibid., p. 10).

We have to wait until the end of World War II to notice an interesting change in terms of philosophy of technical education. In the report of the 1948 reform, which was already being worked on by different committees since the early 1940s, it says:

A long school tradition of abstract type leads certain sectors to underestimate the value of technical education training. However, the worker must also think and the educated person should also work manually, so both could be people in the best sense of the word.\textsuperscript{10} (Alves, 2009, p. 33)

\textsuperscript{10} Report of the reform of 25\textsuperscript{th} August, 1948.
This attempt to enhance the technical competence by approaching the intellectual formation was intended to anticipate the need of the worker to be beyond the physical strength and, above all, to assimilate and understand the idea of continuous progress. Evidently, in the Estado Novo education context, it was also intended to discharge pressure from the excessive student population of high schools by encouraging students to enroll in technical schools, so the economic goals that came to be defined in the fomentation plans of 1950s could be achieved.

However, there are innovative aspects that will mark technical education until the 1970s:

a) The consultation of the economic sectors in order to restructure the courses;

b) The creation of a propaedeutic cycle that, though politically justified in an ambiguous way\(^{11}\), resolved the connection to primary school and will be the preparation for the extension of compulsory education;

c) The creation of a geographically broader network - some zones had no official High School, but had Technical Schools;

d) The articulation between the fomentation plans, the Portuguese industry congress and the strategic importance of technical education.

The increase of the number of students, table 2, reflects a growth in the social demand for this kind of education, especially for those social classes that had lower educative ambitions. The articulation between secondary and superior technical education was always weak.

Table 2

<table>
<thead>
<tr>
<th>Year/modality</th>
<th>1930</th>
<th>1945</th>
<th>1960</th>
<th>1975</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official education</td>
<td>18.375</td>
<td>43.037</td>
<td>98.227</td>
<td>120.183</td>
</tr>
<tr>
<td>Private education</td>
<td>--</td>
<td>4.072</td>
<td>6.926</td>
<td>2.861</td>
</tr>
<tr>
<td>Total</td>
<td>18.375</td>
<td>47.109</td>
<td>105.153</td>
<td>123.044</td>
</tr>
</tbody>
</table>

In: Alves, 2009, p. 34.

Conceptually there are important aspects that should be stressed to frame the most ample worldwide alterations. On the one hand, although restricted in education expenses, the Estado Novo will seek to maintain with markedly distinct functions the secondary and technical education, taking advantage of the different goals to replicate the original social classes. On the other hand, it is perceptible, mainly in the ones responsible for the

\(^{11}\) “In 1951, the minister Pires de Lima states the democratizing vocation of this cycle of studies, ‘that should be named more accurately superior or complementary primary’ to acknowledge immediately afterwards that ‘it is preferable to maintain mainly the technical nature, in technical schools, that elementary education, and with a cultural character, that teaching, or a parallel teaching in high schools’. The reformers feel the need to extend basic education and to retard the educational paths differentiation. But the resistance to this position are very strong” (Alves, 2009, p. 33).
articulation of laws and also in some politicians, a more ample perspective of the role of technical school, in particular, since High School was literally a place to form elites.

This perspective does not prevent the fact that the country’s participation in international bodies and the participation of politicians in those debates make the roles of the two education subsystems increasingly closer:

The dual system was called into question since the fifties, despite the fact that the political discourse try to hide this. [...] The measures of the sixties, most notably the creation of the junior secondary school, extend this logic (thanks to the merger of the 1st cycle of secondary education and preparatory technical school) [...]. The reforming proposals of Veiga Simão are clearly conveying a process of unification of the education. (Alves, 2009, p. 34)

The Ministerial Order of July 25th 1973 attempted to safeguard some particularity for the Secondary Technical Schools through General Courses and Complementary which had four sectors - agriculture, industry, services and visual arts - subdivided into nine general courses and 20 additional courses. But the absence of any prior training for teachers for technically demanding professions and specialties, along with the absence of an organic support to guarantee the action over time, and also the political change occurred in 1974, will derail the implementation of the changes and facilitate the fusion of high school and technical school, thus creating new secondary schools, with perverse effects and significant implications on the structure of the education system:

The unification of secondary education had some consequences with regard to technical education (agricultural, industrial and commercial), whose institutions were restructured, losing the characteristics of schools that prepared for working life and turning into schools of amore lyceum type. The circumstances of the implementation of this policy originated what we can now call a perverse effect that has a greater impact than the policy itself, mainly because the unification of secondary school meant a strengthening of the technical and professional components, even in the non-university superior education, which did not happen until much later. (Grilo, 1994, p. 408)

Although many have thought of this as being immoral, it is a fact that the discursive dynamics on the role of technical education was already envisioning another direction for the training. In many countries the planning role of the State began to be called into question and the discourse on the planning of human capital training needs has given way to "open and comprehensive training, to the appreciation of the development of news skills profiles, to the validation of skills acquired in the exercise of citizen ship and professional

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practice, to the training throughout life" (Azevedo, 2000, p. 130). It started to be claimed that education is no longer "subordinated to a life preparation, as something from outside, which is molded from the outside (from the economy) to inside (student), but as personal and social construction that is made in life"(ibid., p. 130). These new approaches, that will mark especially the last quarter of the 20th century and the first decade of the 21st, already appeared in a more or less explicit way in the discourse of the reformers of the last century. For example, in the "Draft law n. 99, submitted by the government to the National Assembly on the reform of technical-professional education", which led to the reform of 1948, can be read in the 3rd point of the justifying preamble:

The daytime technical school will become what the development of Portuguese economic life requires. However, as some inadvertently claim, one cannot ask from school to create the worker, the agent of highly-skilled labour, the Lord of all the secrets and peculiarities of the profession. The school, precisely because of its nature, can never lead its preparatory action to such extremes. All authorities on the subject disapprove the premature excesses of specialization in school education [...]. The value of professional circle obtained in the school [...] is to facilitate, on the one hand, the rapid posterior specialization, on the other, ensuring that the young worker has the freedom to choose their profession in a relatively large area of activity. This is its best justification as an educational process\textsuperscript{13}. (Diário do Governo, 1\textsuperscript{a} série, n. 139, 19 jun., 1947, p. 571)

In this excerpt is noticeable some important features in the extensive 20\textsuperscript{th} century, especially in the second half, since these features would be in discussion in many national and international forums that will determine what are the new directions of professionalization and of the role of technical school in this context, if the technical schools are not integrated in a broader and more logical secondary education. Furthermore, when trying to identify in the Proposal important features of educative debates, it is possible to find four lines of thought that will be present in various discourses and studies.

A first line of thought, transitioning from what was previously advocated, where is still visible the indexation of the role of technical education to the training necessities of workers. In a situation of economic expansion, like the one that takes place until the 1970's, there is a concern in responding to the economic system looking for the preparation of the human capital, mainly in the countries with a capitalistic economy where specific markets still allowed a specialization without significant competition - a situation close to a late Fordism.

This situation is also verified in recently decolonized or in undeveloped countries that are, mostly, suppliers of very specific products for the more globalized economies or, at least, more internationalized. This aspect can be verified in Portugal - although with very well-defined aims in what regards development and economic foment, articulated by the

\textsuperscript{13} Law proposal n. 99, presented by the Government to the National Assembly, about the Reform of Professional Technical Education. In. Diário do Governo, 1\textsupersérie, n. 139, 19 jun., 1947, p. 571-576.
State, even with protected colonial markets - , and also in Brazil, for instance, which, with the end of the Second World War, was one of the most developed countries, and where the burst of development emphasised the belief in the role of professionalized producers in an education system that had the responsibility of providing skills that were inherent to a more effective production. It is not by accident that, during this period (1945-1970), the role of professionalizing education was amply debated.\textsuperscript{14}

A second line of thought maintained that one could not ask from school the same that was asked from the old corporation, where the secrets of the profession, the specialization, the exam and the autonomy of creating a workshop-school meant that the process was finished; although the improvement of the quality of the products was the guarantee of permanent customers, it was no longer the social certification of its ability. This idea is linked with the consciousness that school cannot provide everything, and cannot be seen as a finished education process, inferring from this that the premature over-specialization can even be counter-productive. This was a central issue in the discussion of contents that should be provided by school. Moreover, it will be this analytical route that will take us to the fusion of secondary and technical school and to the definition of the basics that should be taught by school - the general training, the \textit{back to basics}\textsuperscript{15} or the general education at a convenient level.

A third line of thought, closely connected with the previously mentioned, that considers school as a place of passage in a specific stage of life, but that emphasizes the role of posterior training or the possibility of school training open professional perspectives to an ampler area of activity. This is the same concept defended in one of the thesis of the First National Congress of Professional Technical Education that took place in 1958, when it is highlighted that technical school “should not reduce the student to a \textit{homo economicus} or to the condition of being a machine man; technical education, as perceived by us, strays from the simplistic notion of merely trained specialized technicians […] the paths are these: form the citizen, elevate professional education”\textsuperscript{16}. Converging this perspective into the Delors Report, 1996, and into the principle of life long education is to highlight the anticipatory aspect of these ideas.

In a fourth line of thought it is visible that, increasingly, it was made an appeal to international organs to legitimize positions and justify decisions. On the one hand, means the contextualization and the collect of information by the ones who make the decisions, on the other hand, this connection marked the second half of the 20th century, when the construction of transnational educational programs were in the agenda of various politicians, expecting from the scientific community the suggestion or the indication of the

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\textsuperscript{14} Law n. 5,692, of 11\textsuperscript{th} August, 1971, that changes LBD and created directives and bases for the reform of 1\textsuperscript{st} and 2\textsuperscript{nd} degree teaching - universalized the professional education in middle school.

\textsuperscript{15} Movement of going back to what is fundamental, with a valorisation of general education and an emphasis on behaviour related areas, and fomenting attitudes and competences that derive from a general professionalization rather than from a specialized professional profile (Azevedo, 2000, and Reich, 1993).

\textsuperscript{16} 1\textsuperscript{st} National Congress of Technical Education, December 1958. Thesis of the General culture and technical training.
vectors that should form the internal decisions. In a first phase, in the middle of the 20th century, that connection is of an informative nature; however, in the second half of the century the prescriptive nature will be emphasized until the limit of jeopardizing the possibility of any strictly national decision. The Bologna Process for superior education, in the European context, is also a good example of this aspect.

During this period of great transformations in Portugal and the world, mainly marked by the Second World War, which was a period of economic expansion until the beginning of the 1970’s and of generalized recession from then on, it is important to understand what happened in Brazil in the light of this generalized change, but also representing the specificity of a developing country:

Until 1930, in school administration and in the primary pedagogical setting, ruled the principle that secondary education, an aristocratic luxury, should be left by the State to the private enterprise [...] Until the beginning of the 1940’s professional training was almost limited to the operational training towards a patterned and serial production. [...] The Brazilian Constitution granted by the Estado Novo dictatorial regime lead by Getúlio Vargas, in 1937, predicted (art. 129) the existence of professional and pre-professional schools as a duty of the State towards the less privileged classes [...]. That constitutional determination [...] allowed the creation in 1942 of the National Service of Industrial Learning (Senai) and, in 1946, of the National Service of Commercial Learning (Senac). It also made possible the organization of the Federal Network of Industrial Education Schools, taking as an example the old school network for learners and craftsmen, that were equipped to function as federal technical schools [...] (Cordão, 2005, p.46). With the end of Vargas’ dictatorship, in 1945, and the development of industrialization in Brazil [...] the 1946 Constitution stipulates that the central government should set the directives and bases of national education. An educational project was made and sent to the National Congressing 1948. Such project, of a progressive nature, suffered many vicissitudes, and was archived, retrieved and emended in the Congress for 13 years. (Zibas, 2005, p. 4-5)

To Brazil, the decade of 1940 is a particularly important period of decisions, but also of understanding the degree of construction of the secondary and middle education. Several authors identify this period as a passing phase of the training, of almost artisanal root, to another phase that could answer in a better way the requests of a capitalist production, or, in some cases, pre-capitalist, more patterned and therefore requesting a more technical training. Additionally, the expectations of the popular masses made some States to implement a set of “secondary courses of first cycle (and later of second cycle), nocturnal, in premises that during the day had primary courses” (Zibas, 2005, p 4-5), such is the case of São Paulo in 1946.

The pressure to attend professional courses does not put at risk the defense of a policy of equivalence between academic branches, since the School attendance created expectations of accessing/ascending to superior levels, a goal accomplished with the federal law n. 1.076/50, that “allowed students that concluded professionalizing courses to be able to continue their studies at a superior level, provided they possessed the required
knowledge to conclude their studies” (Cordão, 2005, p.28). The complete equivalence between all middle level courses would be conceded in the Education Directives and Bases Law, in 1961.

We are still in the patronizing phase of the State, reinforced by the political environment, when it was expected the implementation of measures capable of leading Brazil to the path of progress and development through professionalizing training of workers. Evidently, they tried to reform spending the minimum - hence the use of the old school network for learners and craftsmen - which inform us about the level of industrial development and of the delegation on the State of the roles played until then by those spaces of learning and professional certification.

Other important aspect is the difficulty of changing. The probation period of the proposal, about 13 years, puts the problems of the education field in evidence, some of them of historical root, which triggered fiery discussions: for example, the power of Catholic Church lobby, the reach of public finance, the difficult instability between the public and private - revealing the difficulties that had to be overcome internally in order to obtain consensus about what directives to implement. Finally, when in 20th December 1961 the federal law n. 4.024 is published, “secondary education only accepted 14% of people who applied and only 1% of the students could go to superior studies” (Cordão, 2005, p. 48).

The alterations of political nature of the 1960’s brought consequences in terms of rupture with what have been implemented since the 1940’s, and also in what concerns the new philosophy of professional education, mainly internally, although also suffering important influences of external mediators:

The military coup of 1964 interrupted brutally all progressive movements, including those in the field of education and, from that year on, various agreements were signed with the North-American Agency for the International Development (Usaid), which subjugated the country’s educational policy to the determinations of the American technicians. In consonance with the foreigner assessors, Roberto Campos, minister of the military government, claimed in 1968, that secondary education should lose its humanistic education characteristics and gain, instead, useful and practical contents, responding to the people’s needs, while superior education was intended for the elites, undoubtedly. (Zibas, 2005, p.6)

In succession of this new context, in 1971 a law was published and had great implications in the debate of Brazilian education in the end of the 20th century. The law n. 5.692/71 divided non-superior education in two degrees: the first, with 8 years length and the second with 3. Above all, it considered professionalization mandatory. The arguments used are very illustrative of the economic options for Brazil and also of the philosophy that ruled the new professional education. It was advocated that there was the need of preparing as many technicians as possible; given the narrowed relations between the country and the international capital and also that the duality of the middle education
system was unnecessary. It was also obvious the tone of international counseling that, representative of developing countries in post-fordist and in globalization processes, were interested in keeping for their multinational companies some niche of inexpensive and expertise labor to ensure the exploitation of existing resources in less developed countries or technicians to perform extinct activities or endangered in industrialized countries. At the same time, training philosophy and education policies try to find a neo-professionalism with more ample, global and less technical competences.

The posterior difficulties put in evidence the abruptness of the measure, although its existence cannot make forget the subjacent options.

Let us identify the problems in order to get a sense of the characteristics of this subsystem. For starters, the massification of professional courses in secondary schools could not be monitored by the volume of necessary investments, especially in equipment. Then the simple confrontation with former mid-level technical courses ridiculed the new formation, whether because of the premises or the quality of teachers, or the formative result of students or the mistrust that started to be inflicted by employers. Naturally, the massification triggered a greater distance between public schools and private schools that, despite the measures taken, sought to maintain the same level of quality as before, caring little with nomenclature or designation of courses, but focusing, primarily, on content.

Evidently they ended up recognizing the mistake and in 1982 they took over the failure of the initiative and allowed through the law n. 7044, that such training was no longer mandatory, but optional for each school. The return to democracy in 1985, allowed another framing of educational issues and secured a new vision for the various levels of education, especially LDB in 1996, and made closer the discussions and decisions of the Brazilian analyses that, by then, were already for some time in the framework of large international organizations.

The last decades of the 20th century and the first of the 21st brought to the forefront of educational talks new themes that will definitely mark the new directions that technical education has to take, both in Portugal in the European context, and in Brazil in the American context, one and the other in an international global space.

References


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