



The relation between Biology and Culture in teacher training manuals from 1900 to 1940¹

A relação entre Biologia e Cultura nos manuais de formação de professores de 1900 a 1940

La relación entre Biología y Cultura en los manuales de formación docente 1900 a 1940

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Abstract

A tension between biology and culture in human development was the theme that permeated psychology and education. At the beginning of the 20th century, this discussion was prominently present in teacher training manuals. This article aims to analyze the tension between biology and culture in Brazilian education through a documentary analysis of teacher training manuals used in the first four decades of the 20th century. The historical analysis fulfills not only the objective of recovering memory and describing the context and spirit of a time, but also allows us to see the implications of an era for the events that unfolded. Largely based on biological and hygienist aspects, Brazilian education took its first steps towards scientific way. The debate in education can't be distanced from the economic, political and cultural demands of an era.

Keywords: Biology and culture; New School; Manuals.

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Resumo

Uma tensão existente entre biologia e cultura no desenvolvimento humano foi o mote que perpassou psicologia e educação. No começo do século XX essa discussão se fazia presente de forma acentuada nos manuais de formação de professores. Este artigo tem por objetivo fazer uma análise do tensionamento entre biologia e cultura na educação brasileira por meio da análise documental de manuais de formação de professores utilizados nas primeiras quatro décadas do século XX. A análise histórica cumpre não só o objetivo de resgatar a memória e descrever o contexto e o espírito de um tempo, mas também permite ver as implicações de uma época para os fatos que se desenrolaram. Amplamente baseada em aspectos biológicos e higienistas a educação brasileira deu seus primeiros passos rumo à cientificidade. O debate em educação de forma alguma pode estar distanciado das demandas econômicas, políticas e culturais de uma época.

Palavras-chave: Biologia e cultura; Escola Nova; Manuais.

Resumen

Una tensión existente entre biología y cultura en el desarrollo humano fue el lema que permeó la psicología y la educación. A principios del siglo XX, esta discusión estuvo presente de manera destacada en los manuales de formación docente. Este artículo tiene como objetivo analizar la tensión entre biología y cultura en la educación brasileña a través del análisis documental de los manuales de formación docente utilizados en las primeras cuatro décadas del siglo XX. El análisis histórico no solo cumple el objetivo de rescatar la memoria y describir el contexto y el espíritu de una época, sino que también permite ver las implicaciones de una época en los hechos que se desarrollaron. Basada ampliamente en aspectos biológicos e higienistas, la educación brasileña dio sus primeros pasos hacia la cientificidad. El debate en educación no puede en modo alguno estar alejado de las exigencias económicas, políticas y culturales de una época.

Palabras clave: Biología y cultura; Nueva escuela; Manuales.

Introduction

Among the areas developed by philosophy, epistemology is the one that questions the nature of knowledge, its origin, its development and, especially, its support and validity. Such a mission requires complex answers, both objective and subjective; answers that bring with them moments of reflection and debates, sometimes heated, since science is not a homogeneous system and contemplates different perspectives about scientific itself.

Paradoxically, epistemology is a field of knowledge that allows us to reflect on the support and validation of the various scientific fields and knowledge that were once consolidated, including tributary, often originating from a philosophical basis, but which now need to be validated by a philosophy of science. Although modern science claims that the knowledge it produces is the only one that methodologically approaches the truth, since it would not be speculative like philosophy, but based on experimentation, there is no way for scientific knowledge to validate itself without resorting to a philosophy of science external to it, as it would run the risk of losing public control of its findings and falling into tautologies and solipsism.

In this way, a concept of epistemology is expressed that is dissociated from an idea supported by positivism, as demonstrated by Gaston Bachelard (1884-1962), since this thinker presents himself as a philosopher of a more historical and dialectical epistemology, different from that which predominated in the science of his time. He was committed to the transformation of reality beyond a naturalist science, restricted to the principle of causality as a way of explaining the world.

The possibility of evaluating the way in which scientific knowledge is organized can show that theories have long been accepted and considered true in science may end up being refuted and replaced by other discoveries and later innovations. No matter how revolutionary a theory may be, it will not always change the way an entire population thinks quickly and uniformly. Even Einstein's Theory of Relativity, so widely acclaimed as a turning point in knowledge, brings concepts that are much more accepted and impactful to a more academic and specific audience than to society in general. It requires a certain mathematical, and even scientific and philosophical, knowledge to be able to understand it (MAYR, 2004). His theory, initially recognized as irrefutable, can nevertheless be reevaluated, as has happened to so many others, in light of the constant growth and construction of human knowledge.

A particularly important debate in the field of epistemology appears in studies that will address the relationship between the biological and cultural fields, an interconnection between the natural sciences and the social sciences. Research that seeks to establish a connection between biological and cultural concepts stands out, as well as the historical moments in which one field prevails over the other (LÉVI-STRAUSS, 1982; GEERTZ, 2008). However, new areas of study focus on analyzing characteristics considered hybrids between nature and culture, in which what is biologically determined or socio culturally conditioned is verified (ALMEIDA; NOVAK, 2004).

A series of intriguing research studies emerge from this relation between nature *versus* culture that investigate biological and/or cultural aspects of certain characteristics of the human species, such as the act of breastfeeding (ALMEIDA; NOVAK, 2004); the development of old age (LOZANO-POVEDA, 2011); the formation of family ties (BUSSAB, 2000); indigenous societies and their customs (LIMA, 1999; TEMPASS, 2011); body language and childhood (BUSS-SIMÃO; MEDEIROS; SILVA FILHO, 2010); the need to travel (FIGUEIREDO, 2014); and even the development of new areas in the field of science (IANNI, 2011; PITROU, 2015).

Studies in the area of education that explore the relations between nature and culture, especially regarding their implications for teacher training, specifically in secondary education, are rare. It is in this area that our reflection intends to offer a contribution.

Biology and culture in teacher training in Brazil

As Freitas and Biccás (2009) and Vicentini and Lugli (2009) point out, it is known that the teacher training process in Brazil was permeated by numerous adversities regarding its construction, often marked by the lack of interest of the government and the inefficiency of the Brazilian political struggle to make education a State policy, with a long-term reading beyond the management of provisional governments. Surrounded from the beginning by low pay and poor working conditions, the teaching career in Brazil once enjoyed, albeit for a few moments, a certain *status*, but today it is presented as one of the last options for young people who wish to pursue higher education. This fragility that accompanies the teaching process teacher training in Brazil dates back to colonial times. In turn, a greater concern with providing teacher training that is more in line with a scientific perspective is a legacy of relatively recent times.

This study takes as a reference point for analyzing teacher training and its influences the beginning of the 20th century, a scenario of intense global changes that ended up reflecting on the development of Brazil, Brazilian education and its teaching class. It was in that century that education in Brazil began to be given greater importance as a form of progress, especially primary education, with the aim of making it increasingly accessible to the population (SAVIANI, 2009). Associated with the expansion of education was teacher training anchored in science as a support for the development of education.

It turns out that the 20th century, a space of great revolutions and great discoveries in all fields of knowledge, became fertile ground for the discussion of pedagogical trends that blossomed in the construction of a modern pedagogy (FREITAS; BICCAS, 2009). That century brought several moments of rupture to education, especially in Brazil, with emphasis on traditional education, with the aim of making it more accessible and based on scientific principles, especially those originating from the so-called New School.

In the constant search for education within everyone's reach, many researchers became important figures in the development and implementation of public education in the country, such as Lourenço Filho (SAVIANI, 2009). With regard to institutional issues, the *Escola Normal* demonstrated, since the beginning of the 20th century, great concern in being a place, par excellence, for the training of teachers, a movement that timidly began in the second half of the 19th century and was permeated by inconsistencies in its functioning. These spaces for teacher training began to emerge in an increasing manner at the same time that the school was increasingly considered a priority place for education.

In order to meet this growth in education, it was necessary to train enough teachers to meet the number of schools that were created in the country. In this way, the teacher training diploma granted qualifications for teaching and the curricula of the training courses were based on the ideas that society wanted to disseminate in each historical period (FREITAS; BICCAS, 2009).

It is worth noting that even with all the concern in making teacher training a reality in the country, at the beginning of the century there were still no significant rates of professionalization of the career, so that the teaching role was occupied by professionals from other areas, such as doctors, engineers, judges, among others who, obviously, did not have specific training for teaching. These professionals brought with them a cultural repertoire from their areas of training that, at times, came into conflict with the specific experiences of the educational process (VIVIANI, 2007).

At the beginning of the 20th century, precisely in the 1920s, education received a new boost when the power of the State and political struggle allowed a scenario marked by educational reforms driven by urgent demands – whether political, economic or cultural – regarding the situation in which education found itself in Brazil.

According to Saviani (2013), this also represents a period in which the Catholic Church attempted to regain its influence in the pedagogical field, a space lost to the strength of renewal movements that were beginning in the country. These forces were driven by the urbanization and industrialization that emerged in Brazil, in the transition from the previous agrarian-export model to an emerging industrial model. In that decade, an important lay movement emerged in Brazilian education: the *Associação Brasileira de Educação* (ABE). Under the initiative of the Catholic Church, in opposition to the ideals of the New School, the *Confederação Católica Brasileira de Educação* (CCBE) was founded, a step that promoted a great clash of educational ideals.

During this period, actions in the field of medical-sanitary activity stand out, which created a favorable scenario for the expansion of education in which “[...] the disease inspired the imagination of writers, politicians and reformers in order to transform clinical repertoires into sources for the social sciences. “The prominent doctors’ position made them authorized and authorities in the writing of pedagogical materials” (MORANDO; SOUZA, 2017, p.3).

It is worth noting that the government of Getúlio Vargas, with its project to build a strong and organized national state, instituted, at the same time, programs of a prophylactic and welfare nature (VIVIANI, 2007). Here, the creation of the Ministry of Education and Health stands out, in the 1930s, which brought the medical field closer to the educational field, including in the dissemination of ideas that permeated the great Brazilian elites. In this context, it is highlighted that this “medical-scientific discourse may have generated conditions for the creation of the discipline of Educational Biology, in the curriculum of *Escolas Normais*” (MORANDO; SOUZA, 2017, p.6). A more careful analysis of the emergence of this discipline, as well as the teaching of biology itself in the school curriculum, cannot be limited to the history of biology, but aspects related to the schooling process itself must be considered (MARANDINO; SELLES; FERREIRA, 2018).

As an example of this amalgamation of biological and cultural aspects that influenced education, we can cite the eugenics movement, which arrived in Brazil at the beginning of the 20th century. This movement was linked to the process of implementing an ideal family development policy and a questionable “whitening” of the Brazilian population, which was notoriously marked by the miscegenation that formed it.

Obviously, all of these aspects had an impact on teacher training, and new directions were perceived for teachers with the evolution of the New School movement, which even included reformers and supporters of the eugenics movement in the country.

The legacy of the New School, especially represented by the extensive work of John Dewey (1979), developed in the United States in the first decades of the 20th century, found fertile ground among Brazilian intellectuals, including Anísio Teixeira. The peak of the New School movement in Brazil culminated with the publication, in 1932, of the *Manifesto dos Pioneiros da Educação Nova*. Freitas and Biccás (2009) state that the manifesto had a significant impact and brought a vision of the history of Brazilian education that went beyond any other that could have emerged at the time.

This movement sought to promote a renewed education in relation to traditional forms of teaching, and was based on a perspective that considered the individual constituted in light of biology, psychology and sociology, showing a relations among these areas (SOLLERO-DE-CAMPOS; WINOGRAD, 2009), although from a predominantly positivist perspective. Many educators supported and led educational reforms throughout the country, such as Lourenço Filho, Fernando de Azevedo and Anísio Teixeira himself, called “reformers of Brazilian

education” (VICENTINI; LUGLI, 2009). Although the importance and scope of the New School for Brazilian education are recognized, its impacts can be better assessed from a historical-critical perspective, as proposed by Saviani (2009).

It is possible to see that the New School movement was interconnected, at least at its foundations, with legitimate concerns about human development and formation, its evolution and its determinations. For a long time, hereditary factors were considered prevalent, compared to environmental and social influences in the formation of the individual. It is a fact, however in a seminal way, there was also an attempt to find a complex combination between both in the explanations of several researchers of the time, such as Dewey (1979), heir to William James' psychology, who addressed an education for life at the same time as a biological psychology.

These issues directly influenced the curriculum of teacher training, at a time when the inclusion of the subject Educational Biology was perceived as fundamental in the training process. The argument was that biology provided knowledge of the morphology, physiology and psychology of individuals, which were essential for adequate teaching.

Still prominent in the field of education, in 1930 Lourenço Filho's ideas spread with the publication of the book “*Introdução ao Estudo da Escola Nova*”, addressing concepts of the Active School and highlighting the lessons on which it would be based. At the beginning of his lessons, Lourenço Filho highlights the scientific tripod on which the new school ideal would be based: on the studies of biology, psychology and sociology, albeit from a positivist or New School reading.

According to Saviani (2009), the reforms led by Anísio Teixeira and Fernando de Azevedo, respectively in the Federal District and São Paulo, inspired by the ideas of the renewal movement, allowed teachers to be trained with more scientific bases, in the well-known laboratory schools, institutions designed so that future teachers could take ownership of the exercise of teaching, anchored in a modern pedagogy, already in their formative stage.

In addition to the scientific tripod stipulated by the ideas of the New School, emphasis was given to “Education physical, moral and civic”, with the aim of developing students' health, “resistance and joy of living” and preparation for citizenship, an ideology clearly anchored in liberalism and scientific positivism. To this end, there were professional schools with the title of medical inspector and dental inspector, who monitored and acted as health educators with the help of nurses and the teachers themselves (SAVIANI, 2013).

It is clear that in the Vargas government, in 1930, the creation of the National Education Council (CNE) and the regulation of the functioning of universities also stood out. The then Minister of Education and Health, Francisco Campos, established that for the official registration of teachers it would be necessary to present as a condition a diploma conferred by a college (FREITAS; BICCAS, 2009).

After the 1930s, the education scenario was once again undergoing a new set of broader social, political and economic changes (ROMANELLI, 1996). Gustavo Capanema's reform, strongly influenced by the New School ideology, contributed to the creation of the National Institute of Research in Education (INEP) and also to the decrees that culminated in the enactment of the Organic Laws of Education. Regarding teacher training, still expressed in the *Escolas Normais* system, it is of utmost importance to highlight the changes brought about by these decrees.

The Organic Laws of Education intensified teacher training, which was carried out in the Institutes of Education. Thus, after 1946, “[...] these institutions should offer specialization courses for teachers in the areas of special education, pre-primary education, drawing and applied arts, music and singing” (VICENTINI; LUGLI, 2009, p. 44).

The first four decades of the 20th century were marked by tension in education. This reality resulted in clashes between discourses originating from biological aspects, such as eugenics and hygienism; and the need to form a society for industrialization, which needed to overcome the recent slave culture that was “broken” only in 1888.

Based on this context, the objective of this study is to make a historical and epistemological analysis of pedagogical manuals written by Brazilian authors, used in teacher training in the first four decades of the 20th century in Brazil, with the purpose of analyzing the tension between biology and culture present in such manuals and their possible implications for teachers' educational strategies.

Methodological approach

The study sought to understand how primary school teacher training occurred in the first four decades of the 20th century and to analyze to what extent teacher training was conceived as determined by the biological aspects of learning and/or the cultural dimension articulated with the learning process.

This time frame was defined in view of the expansion of educational reforms that occurred at the beginning of that century, marked by political, economic and cultural changes such as the official abolition of slavery in 1888; the transition to a republican regime in 1889; and the transition from an agrarian-exporting economic model to a more urban and industrialized economy. The beginning of the 1940s was marked by pessimism resulting from the Second World War, which occurred predominantly in Europe and had a direct global impact on the project of an education inspired by science (ADORNO, 1995).

As for the nature of the data, the approach chosen for the analysis of the facts was supported by qualitative data, because according to Bogdan and Biklen (1994), this type of approach offers the possibility of interpreting reality in descriptive details, full of complexity, as well as collecting data in the form of words, as this research proposed. For Minayo (1994), this approach also allows us to enter a level of reality that cannot be quantified, as it works with meanings and phenomena that are not limited to the operation of variables.

Having chosen the bias through which the research question was discussed, we opted to approach the data using a documentary approach, based on reading and analyzing the content of textbooks, known as pedagogical manuals and categorized as documents based on the concept of Cellard (2008, p. 296), who defines a document as “[...] everything that is a trace of the past, everything that serves as testimony, is considered a document or source”. According to Alves-Mazzotti and Gewandsznajder (1998, p. 169), “[...] any record that can be used as a source of information” can be classified in this way.

According to Cellard (2008), it is understood that document analysis allows us to reconstruct a theoretically recent past, since it seeks traces and verifies testimony from an era. In addition, they are concrete sources for the operationalization of a public policy, especially when one takes into account the economic, historical and social context in which they were produced.

According to Silva's definition (2001, p. 11), pedagogical manuals are classified as such because they are works prepared based on official teaching programs, intended to develop knowledge in certain disciplines and belonging to the curriculum of teacher training institutions in Brazil. In a more concise definition, the author presents them as: “[...] books about pedagogy, didactics, methodology and teaching practices, aimed at students of normal schools, educational institutes or philosophy faculties, aiming at the training and improvement of teaching activities”.

This study is, therefore, a descriptive and exploratory research focused on the analysis of pedagogical manuals that, according to historians of education, they were widely used and reflected the teaching needs of the time, as well as the demands of school manuals. Therefore, far from exhausting the discussion, this analysis aims to contribute to the debate on the tension between biology and culture.

The Chart 1, below, presents the list of works analyzed that were found in libraries or even acquired. This set of works was formed from an exploratory study involving several researchers in the area, such as Silva (2001), Viviane (2007), Savianni (2009), Freitas and Biccas (2009), Vicentini and Lugli (2009), among others.

Chart 1 – List of works analyzed

Autor	Manual	First Edition year	Edition Analysed
Everardo Backheuser	Técnica da Pedagogia Moderna	1934	2nd ed – 1936
Francisco Vianna	As modernas directrizes no ensinoprímário	1930	1st ed – 1930
João Toledo	Didáctica (Nas escolas primárias)	1930 (jan)	2nd ed – 1930 (aug)
	Escola Brasileira	1925	2nd ed – 1929
	Planos de lições (noções comuns)	1934	1st ed – 1934
Lourenço Filho	Introdução ao estudo da Escola Nova	1930	7th ed -1961

The difficulty in finding works by Brazilian authors prior to the 1920s is due to the fact, according to Silva (2001), that most of the manuals circulating in the country were by Portuguese or French authors. Although this research did not analyze manuals related to the first two decades, the chosen period encompasses the same historical context as the first republic, in which there was a strong influence of the New School ideals.

Pedagogical manuals for teacher training in the first decades of the 20th century in Brazil and the debate between biology and culture

The period under study brings intense discussions about the school environment, teaching, the role of the teacher and their support and study materials. Everardo Backheuser, Francisco Vianna, João Toledo and Lourenço Filho are authors who stand out in this time frame, since their works translate the issues pertinent to the period and the vision of school under construction, as well as explaining the main movement related to education at the time: the New School.

The João Toledo's (1930) work recalls that, at the beginning of the 20th century, the space destined for formal education, an environment that today is known as a school, it was quite rudimentary and often nothing more than houses that, despite having a good appearance, did not meet the needs of a “new” school, which desired and demanded specific needs. For Toledo (1930, p. 14), “[...] unfortunately, the schools spread throughout the vast Brazilian territory, deficient in number and, more often than not, in quality, they are still far from meeting national demands”.

Also during the period under study, Lourenço Filho (1930) emerged as a reformer of the New School in Brazil, holding positions in the educational sphere and author of influential texts in the dissemination of the movement about the teacher's role in school, the teaching that should be predominant and the centrality of the student in the teaching and learning process.

Regarding the figure of the teacher, which is fundamental to this analysis, it is represented in the writings of the aforementioned author in important texts produced at Education Conferences dating from the beginning of the century and republished in 2001. In one of these conferences, entitled *Há uma vocação para o magistério?*, from 1928, the author describes the desirable teacher's profile for the time, addressing the importance of teaching for the country.

The vocational spirit of teaching, in its most common meaning, in which the teacher was attributed a mission, a practice based on selflessness, is perceptible in the Lourenço Filho's words. A vocation for teaching stands out in simpler terms as a certain predilection, taste or inclination for the art of teaching, not believing in a genetic predisposition or endogenous causes that can explain the interest in teaching, as it makes clear the premise that the desire for teaching is socially constructed (NUERNBERG; ZANELLA, 2003).

It is also worth highlighting the civic and moral character of teachers' conduct, which has been present since ancient times and has continued into modern times, although civic-mindedness and morality are characteristics inherent to the culture of a person living in society.

In addition, the analyses carried out with "teachers" at the time of the study in question are noteworthy, regarding the idea they had about this vocation belonging to the profession. The majority stated that they became teachers due to a variety of circumstances and not only because of the "mystical" content of the term. In these cases, those who were inclined towards teaching demonstrated, broadly, an identification with the profession, thus confirming a social construction of the career (NUERNBERG; ZANELLA, 2003).

Although Lourenço Filho (2001) explicitly disagrees with the term vocation as a natural gift (FERREIRA, 2017), an innate predisposition or something mystical, he does not completely separate them from issues related to individual aptitudes for the pursuit of a career, attributes necessary for any profession. Ultimately, it was a question of opportunities linked to social class, since, at the time, candidates for teaching rarely came from the working and underprivileged classes.

It's also important to highlight the characteristics of the primary school teacher, listed by scholars and brought to the text by the author. He enumerates a list of twenty attributes that range from the ability to retain facts in memory, to have a critical sense, handwriting and appropriate spelling, to the ability to work in a group. Note the qualities attributed to the teacher's sensitivity to deal with diverse subjects that could be improved through the teaching activity itself.

An important aspect during this period is the matrix of disciplines in the teacher training program. Among the disciplines considered fundamental, a propaedeutic nature and others aimed at professional performance, there is one that is relevant to this study: Educational Biology and Hygiene, a discipline which would prove that the Teachers' School also had a curriculum focused on biological and hygienic practices in the training of primary school teachers (VIVIANI, 2007).

The historical and epistemological analysis of these biological ideas present in teacher training, at a time when hygiene was one of the ideals of Brazilian society, reveals a time and allows us to understand its implications for contemporary education. It also shows a certain specialization of biology as an autonomous science (MAYR, 2004), but this time applied to education and the naturalization of human behavior (VICENTINI; LUGLI 2009).

Within the scope of this training proposal, Lourenço Filho (2001) refers to the necessary training for primary school teachers. The development of their pedagogical base was the mission of the old normal school. Two years of study were devoted to the subjects that were important for professional training, with one year of fundamentals and one of application. In the first year, Educational Biology was studied as a fundamental subject, a concept defended by the ideas of the New School.

The expression, with a certain "biologizing" character, of education in the 1930s is visible when observing the data on the medical services implemented in the teacher training environment. Education and Health were almost inseparable services (MORANDO; SOUZA, 2017). The medical programs and their professionals, once installed in the institution, cooperated with the practice of physical education and also served to carry out the mandatory health test for candidates for teaching. In addition, the medical services included the dental

service, which monitored the oral health of children in kindergarten and primary school (VIVIANI, 2007). All of these actions within the school environment were part of the institutional hygiene processes of the time, inherited from the various hygienist practices applied to education (FREITAS; BICCAS 2009).

There is also a specific chapter in which Backheuser (1936) classifies the sciences related to pedagogy, of which the teacher should have in-depth knowledge. The most important are those that consider the human being in its essential parts, body and soul, such as biology, and those that portray its adaptation to social life, such as philosophy and sociology.

According to the aforementioned author, biology should be viewed by education not only as the science of the body, but as a fundamental component of the student's comprehensive education, and he adds that “[...] biology, whether as the physical basis of psychology, or as a fundamental science of hygiene, or as an element of general culture, therefore occupies a prominent place. No educator can do without it. In normal courses, it must therefore have a prominent position” (BACKHEUSER, 1936, p. 91). It is clear that the psychology project adopted by Backheuser follows an epistemological logic of the positivist and organicist tradition common at the time and which would continue in the behavioral sciences.

In a more practical way, João Toledo's (1930) manuals were concerned with determining how teachers should teach content and the foundations of genuine New Education. They present a wealth of detailed knowledge and give their version of how schools, teaching programs and the school curriculum work.

In his texts, there are other particularities related to the time: the defense that the characters involved in the education process needed to be aware of a new pedagogical way of thinking, because otherwise its implementation would not be possible. The work is concerned with providing teachers with guidelines that education is a process that involves many participants and for it to develop satisfactorily, these participants should be active and aware of their actions. However, Toledo (1930) states that in practice this did not happen. For example, regarding the parents' thinking, the author highlights that even their cultural mentality presented itself as a difficulty in the process of implementing a New Education and, at times, delayed the action of a renewed school.

This reality showed a certain tension between the discourse prescribed by the New School and real and social life, because it was hardly feasible to modernize a markedly traditional economic and social reality with strong conservative and, at times, even reactionary traits of the culture of the time based on discursive determinations. At that time, for example, it was believed in the broad separation between home and school typical of the traditional view of education, “[...] the social organization allowed home and school to live in isolation, each with its own function: the school teaching, the home educating” (BACKHEUSER, 1936, p. 33). However, Toledo (1934) gave the school a crucial social role, since through school life, students could experience new principles of sociability, and it was up to the family to understand this social role inherent to formal education. It was necessary to understand that school was the continuation of what began within the family. In fact, one of the main ideals of the New School movement was to bring about the effective participation of parents in school development.

Despite this conception, for Toledo (1930, p. 15), many parents believed that school education could do nothing in relation to “[...] health, resistance, energy, courage, prompt resolution, firmness in conduct, cooperation, sociability, foresight, work and economic habits [...]”. However, such perspectives were part of teacher training based on New School foundations and could even reach primary school students, since they were configured as precepts of a true New Education.

Toledo (1930) understood that, for parents, their children's daily experiences were the result of natural gifts that could not be improved or developed in the school environment. According to the author, in the parents' view, the school should only deal with reading, writing,

arithmetic, geography, history and common notions of daily life. The individual's comprehensive education would be the responsibility of the family and the church, a view built on traditional foundations.

For Backheuser (1936, p. 231), educational tasks should be divided between the school and the family, with the former being responsible for an education closer to the ideals of science and the latter providing the child with a moral foundation, as if these dimensions could be separated:

There are undoubtedly aspects in education in which the school should predominate; in others, the home has an indisputable right. Everything that concerns instruction itself, whether physical, artistic or scientific, is the responsibility of the school – in the modern social order – to the ascendant. However, in everything that refers to moral formation, the home should have predominance.

Regarding the transformations in the educational process underway in Brazil at the time, it was argued that the agents who could participate in these changes should understand their place in this process. According to Francisco Vianna (1930), an author also investigated here, parents, teachers, students and other participants in the educational sphere did not adequately understand the extent of the new reality that was being sought.

Despite all this, Toledo's work (1930) highlights that the school curriculum could have a practical use for the student's life, providing him/her with proximity to the environment in which he/she lived. He also emphasizes the content of the school curriculum is nothing more than an instrument to promote the child's physical, intellectual and moral formation. This instrumental and instructional vision was also highlighted in Backheuser (1936) as Comprehensive Education, one of the New School pillars and which should impact the nationalist project of the time.

To this end, the aim was to make the country a sufficiently self-sustainable nation that knew how to take advantage of its natural resources and teach the population to work for the "good use" of everything that the country had been blessed with geographically, a view that is still prevalent today among part of the population, based on the logic of a nation that produces primary goods to be supplied to developed countries, remnants of the agrarian-export model.

At this point in the work, one can see the importance given to the study of the country's natural beauty and heritage. The author proposes there is no better place than schools to develop and prepare human beings to deal with their own biological dimension, something that is placed in great emphasis in the analyzed works of João Toledo, configuring the aforementioned connection between education and health (FREITAS; BICCAS, 2009). It is clear, therefore, that the tension between the representativeness of modern education and what is lacking in traditional education is not only found in the most privileged sectors of society and families, but even impacted the supposed reformers and their instruction manuals.

Therefore, in the midst of this tension, it is not surprising to observe a discourse of "race improvement" as a supposedly necessary aspect of the country's development (VIVIANI, 2007). This is not surprising, since social prejudices could be disguised here as a supposed scientific evolutionism applied to social reality. In this sense, education should act to try to reach different population groups. Thus, in rural areas, education was intended to treat illnesses such as worms and sanitation issues; and in urban areas, the concern revolved around the ills that affected society, such as alcoholism and other addictions, leprosy and tuberculosis.

In this way, the work *Escola Brasileira* brings to the universe of teacher's training guidelines about dimensions related to physical and mental growth, weight, brain function and children's intelligence, and "normal" height and abdominal circumference, which were seen as important functional traits. A configuration that seems to echo eugenic ideals present in Francis Galton's ideas on intelligence, a result of certain distorted readings of Charles Darwin's evolutionism (MAYR, 2004; VIVIANI, 2007).

In addition to these traits, regular and satisfactory breathing was an indication of physical strength. In this sense, school anthropometry was used to determine children's health conditions. It was believed that children in perfect health would tend to have greater intellectual development, configuring an ideology apparently inspired by eugenics (VIVIANI, 2007) and found between the lines of teacher training. The work concludes that "[...] it is more common where there is physical advancement, that is, among children of the same age and, generally, the largest and healthiest learn more easily" (TOLEDO, 1929, p. 74). Biological and eugenic traits were taken into consideration in the teaching process, and the teacher was responsible for working with the diversity of physical characteristics of his students.

A strong emphasis, for example, was placed on the study of the sense organs and their functions in the educational process. Both *Escola Brasileira* and *Didactica*, with regard to primary schools, highlighted the importance of the teacher in assessing the acuity of his students in terms of vision and hearing in order to better distribute them in the classroom. Both works, in fact, teach teachers the possible tests to be carried out to determine whether or not a student had any visual or auditory difficulties.

It was recommended that these tests be carried out on the first days of class in order to make the most of the school activities. It is important to remember that during this period, the presence of doctors in schools became common (VIVIANI, 2007; MORANDO; SOUZA, 2017); this professional was responsible for determining abnormalities and correcting them. The teacher was responsible for discovering whether children had possible vision or hearing problems and referring them to the school doctor.

No less important is the emphasis given to the laws of heredity and how nature interferes in the development of the individual. At this point in the 1930 compendium, the author emphasizes basic concepts of evolution and heredity, knowledge that was not very prominent at the time of the writing. It is worth remembering that the beginning of the 20th century brought only the first steps in the conception of evolution, heredity and genetics as a whole (MAYR, 1998).

Toledo (1929, p. 870) even warns that consanguineous marriages should be avoided, although he considers them "much less dangerous than those of idiots, repeat offenders, those born crippled, and profoundly inferior abnormalities." This is the admission of biological determinism in the formation of human behavior and eugenics in a country that had recently entered the republican regime, with vast social inequality.

According to the author, no teacher could ignore the general lines of evolution, since educational principles were based on them and studies of biological evolution provided the foundations for the construction of pedagogical theories. In this way, João Toledo's work introduced teachers to the study of evolutionary theories, placing a strong emphasis on Darwinism and Lamarckism, and subjecting their educational implications to the knowledge of future teachers.

Finally, it became very important for education to address issues such as food, clothing, breathing, housing, gymnastics, sports, addictions, and other issues related to human nature. This education was inspired by the famous natural selection proposed by Charles Darwin, since intelligent intervention, possible through education, would allow control over human nature.

Based on this list of important knowledge for the time, teachers were also made aware of factors that could interfere in the educational process, factors that Toledo (1929) called somatic modifiers of education. Children's nutrition, for example, is highlighted, since it was the teacher's role, in possession of information about hygiene, to disseminate it among their students and indirectly to their families. Regarding knowledge of hygiene, the author states that "for the professional preparation of the teacher, knowledge of such measures is imperative, not as a simple subsidy, but as an integral part of the science of education" (TOLEDO, 1929, p. 134).

Nutrition was also seen as an external factor that could intervene in the educational process. Toledo (1929, p. 123) adds that "a people that eats well is a people that builds the fundamental structure of its greatness". Food was seen as essential for children to be able to develop their full mental potential. However, Toledo did not emphasize the conditions of poverty and malnutrition of the majority of the population at the time, victims of the unequal distribution of national wealth that continues to this day.

It is interesting to note that in the writings of the time, the association between physical activity and mental development was common. In *Planos de Lição*, the author refers to gym and physical preparation classes as "clearheaded" activities for students. Mental development was compared to muscle growth obtained through physical exercise.

When discussing physical activities, he makes it clear that they are essential to the educational process, since success in all other subjects depends on them. With this thought, he places the tendency to practice physical games as something natural, instinctive, something that would control emotions and bring stability to the mind, facilitating the learning of other subjects.

By criticizing the traditional school and the passivity of the student that was observed there, Toledo opens space for discussion about the importance of student's activity. This is a foundation of the Active School, as evidenced by Vianna (1930) in which he considered the child as a member of a broad and natural organic community formed by soil, water, air, light and temperature, plants and animals. Although it highlights a certain systemic dimension, this argument emphasizes the biological and natural dimension to the detriment of the social and historical one.

In this sense, it has already gathered information about what was important to have in the school environment, what was considered viable for the development of an active student who participated in his or her own education, the work *Escola Brasileira* focuses on bringing information to the teacher's universe about the primary school curriculum and its importance in making it concrete in the student's life. It stated that a short curriculum, but adapted to what would really be useful in the student's daily life, was more valid than a vast curriculum with information that could not be used in the reality of the person who was learning.

Following this premise, the teaching subjects would be adapted to the student's life interests and to his or her physical and social environment. These were: reading, writing, grammar, history, geography, common notions linked to the student's daily experiences; and all should be accompanied by drawing techniques and physical activity. According to Toledo (1934, p. 13), the intention of the school curriculum and the subjects that comprised it would be to guide the student in his or her difficulties, to show him or her the way to overcome them "no matter whether they come from mechanics or biology".

A somewhat eclectic emphasis was placed on common notions which, according to the author, it would be a combination of various knowledge that would allow the child to be brought as close as possible to his or her natural and social reality. These notions were configured in various cores of knowledge about cosmic nature and society, in which "all the clarifications that human activity requires for the good organization of conduct are bundled together" (TOLEDO, 1934, p. 25). This knowledge base included zoology, hygiene, botany, chemistry, physics and morals.

The content application resulted from the child's real needs, and did not have to follow a logical sequence. He also emphasizes that it was through the study of common notions that the student exercised his or her senses and sharpened his or her curiosity and interest typical of childhood. It turns out that the acquisition of common notions at this stage of life, it would ensure that the student would later develop habits of hygiene, order and camaraderie towards others, as well as feelings of justice, courage, cooperation with the society in which he lived and even civic duty.

In the author's view, these common notions classes, as well as geography classes, formed the mass of more useful knowledge and should be applied outside the classroom, preferably on excursions, in the surroundings of the home and school. In this way, the students would observe simple, everyday things, such as plants and animals; the earth and the sky; atmospheric phenomena and human work and its differences. Thus, it was desirable for the student to have contact with nature and also with the culture of the society that surrounded him.

In Toledo (1934) it is possible to see the circles that grouped together and formed the set of activities seen in common notions. These were nutrition, ornaments and clothing, housing, cosmic influence, social life, work and the organization of the economy, that is, "Things to be observed, knowledge to be assimilated, and suggestions for manual activities, indispensable in an objective education" (TOLEDO, 1934, p. 47). It was a mix of the natural and the cultural in the child's life, because for them everything that approached the natural caught their attention and, in fact, became enjoyable for learning, although social issues were also of great importance.

A critical and socio-historical analysis of the constitution of the school curriculum of the first decades of the 20th century makes it possible to denaturalize emerging disciplines, in the words of Marandino, Selles and Ferreira (2018), since it highlights the historical, epistemological, cultural and ideological constructions involved in this process.

Final considerations

Historical analysis fulfills not only the objective of recovering memory and describing the context and spirit of a time, but also allows us to see the implications of an era for the events that unfolded later, in a retrospective view of that time. The past marks for us choices between possibilities, as well as the implications of the alternatives selected and rejected. Only human beings can understand history and its laws, because historical laws are not, in fact, natural laws, although human beings depend on nature to make history.

When we analyze the influence of pedagogical manuals about the Brazilian teachers' training in the first decades of the 20th century, under the strong influence of the New School movement that was on the rise at the time, we can see that the movement was important for the advancement of the scientific Brazilian teachers' training not only at the time, but with repercussions up to the present day. The particular interest is the New School's insistence on linking teacher training to a more scientific and applied pedagogical approach, with moments of pedagogical practice carried out under the supervision of the master teacher, in activities carried out in laboratories set up for this purpose. Likewise, the New School's concern with improving teacher training, based on more scientific foundations, as a precondition for improving student learning, was recognizable.

As it was expected, the debate on education can in no way be distanced from the economic, political and cultural demands of an era that contributed to the spirit and possibilities of reform. Although the debate about the interfaces between a more biological or cultural reading of the human being, in the terms described in the manuals analyzed, seems to refer us to worldviews that are often outdated and prejudiced, such as eugenics and hygienism that marked Brazilian culture in that period, they should be understood first as an effort to modernize

the national culture that was moving from an agrarian-exporting capitalist economic model, based on slavery, to a supposedly redemptive industrial and urban society, based on wage labor and formal law. Almost eight decades later, it is no surprise that many of those debates are still at the center of educational debate today.

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