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Backgrounds of the construction of the PCN: experts and the curriculum production

Batidores da elaboração dos PCN: os experts e a produção curricular

Wagner Rodrigues Valente[1]

Lauro Igor Metz[2]

Abstract

The text aims to develop a historical analysis of the construction of the National Curriculum Parameters of Mathematics for the primary school. A first approach is made to the backstage of the PCN's curriculum production, a proposal made official in the 1990s. The article focuses on the development of mathematics for the first years of primary school. As research sources, we use documents, interviews and scientific productions related to the theme. The research process chooses a theoretical-methodological basis that involves the mobilization of the expert concept. We analyze the issue through different scales of observation to emphasize this type of investigation pace for studies that intend to understand the processes and dynamics of knowledge development present in teaching and teacher education. The study concludes that contrary to the initial intentions to produce new curricular references based on daily school life and innovative proposals that were being carried out by a collective of teachers, the participation of specialists linked to universities led the NCPs to meet yet another logic of academic production than contemplating in its wake the systematization of experiences coming from teaching, from the school environment. This situation clearly reflects the context of the production of new knowledge for the teaching and teacher education where experts are located. These individuals move between different academic and professional fields, trying to contemplate demands that are often contradictory.

Keywords: PCN; Mathematics; Mathematics education; Experts.

Resumo

O texto tem como objetivo realizar uma análise histórica do movimento de elaboração dos Parâmetros Curriculares Nacionais de Matemática para os anos iniciais. Realiza-se uma primeira aproximação aos bastidores da produção curricular dos PCN, uma proposta oficializada na década de 1990. O artigo atém-se à elaboração da matemática para os primeiros anos do Ensino Fundamental. Como fontes de pesquisa utilizam-se documentos, entrevistas e produções científicas relacionados com o tema. O processo de investigação opta por uma escolha teórico-metodológica que envolve a mobilização do conceito de *expert*. Realiza-se uma análise em diferentes escalas de observação de modo a dar ênfase a esse tipo de marcha de investigação para estudos que intentem compreender os processos e dinâmicas de elaboração dos saberes presentes no ensino e na formação de professores. O estudo permite concluir que, ao contrário das intenções iniciais de produção de novas referências curriculares, tendo por referência o cotidiano escolar e propostas inovadoras que estavam sendo levadas por um coletivo de docentes, a participação de especialistas ligados às universidades levou os PCN a atender mais uma lógica da produção acadêmica do que contemplar em seu bojo a sistematização de experiências vindas do ensino, do meio escolar. Tal situação reflete bem o contexto de produção de novos saberes para o ensino e formação de professores onde estão situados os *experts*. Esses personagens movimentam-se entre diferentes campos: acadêmicos e profissionais buscando atender demandas no mais das vezes contraditórias.

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[1] PhD in Education from the University of São Paulo. Associate Professor, Department of Education, Federal University of São Paulo, Brazil. E-mail: wagner.valente@unifesp.br. ORCID: https://orcid.org/0000-0002-2477-6677

[2] Doctoral student in Sciences, Postgraduate Programme in Education and Health, Federal University of São Paulo, Brazil. . Teacher at the ESIC Faculty of Curitiba, Brazil. E-mail: lauroigormetz@gmail.com. ORCID: https://orcid.org/0000-0003-3859-5137

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Initial considerations

This article analyzes the Mathematics PCN – Mathematics Curriculum Parameters for Elementary School 1 (6-10 years old). The analysis intends to explain the first approximation to what we could identify as the backstage of the elaboration of this curricular proposal for mathematics teaching in the first school years in Brazil. From the outset, we must remark that a didactic-pedagogical analysis of the proposal is not in question. By focusing on the individuals involved in the production of the PCN, the study seeks to identify processes and dynamics of knowledge construction for mathematics teaching made official at the national level since 1995. For the text, we make a theoretical-methodological choice that involves the mobilization of the concept of expert.

The characterization of the term expert dates back to the 14th century (Porret, Brandli, Lozat; 2013). At that time, the expert was a technical specialist who solved practical problems. On the other hand, at the beginning of the 19th century, according to Peter Burke (2016), expert designates a new craft: a person or a group hired by governments to provide advice. Such governmental need was imperative, given the task of solving practical problems such as sanitation, urban planning, or administration of public accounts. These were questions linked to the growth of cities from the century before last.

In this text, the term expert is in line with what, more recently, a team of researchers from the University of Geneva, Switzerland, coordinated by Professor Rita Hofstetter, designated as experts in education.

In the mid-nineteenth century, when the national education systems were being constituted, the governments started needing specialized knowledge to manage this new public apparatus. The advice of experts aimed to support decisions to be taken in the school environment regarding teaching efficiency, management of the flow of students, adequacy of the school to different audiences, organization of contents and stages of the pedagogical process, etc. (Hofstetter, Schneuwly, Freymond; 2017).

Thus, the education expert is an individual or a group of individuals summoned by the education authorities to assist them in producing knowledge that supports an official decision to solve a practical problem. This practical problem to be solved can be, for example, the production of new curricular references.

The production of a curricular proposal, being of governmental responsibility, leads leaders to assign some individuals or groups of individuals as experts. For the case that interests us, they must solve the practical problem of producing a new curriculum, a new curriculum base. That is the meaning of expert that we adopt in this text. Curricular production analysis needs to consider the experts as subjects hired by the official body responsible for education so that it is possible to understand how knowledge was chosen and systematized for teaching and teacher education.

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The curricular references are enclosed in official documents, for which the analysis of those documents alone reveals little about their production processes and dynamics. On the other hand, knowing the backstage of this production of new knowledge is fundamental for the understanding of the choices made regarding the inclusion or exclusion of topics and teaching contents, the sequences and location of the subject matters over the years, the graduation considered important at a given time, revealing students' conceptions of learning, among several other important questions. In this sense, at first, the official curriculum documents alone seem like "black boxes" (Latour, 2000). The analogy is relevant because curriculum production involves complex plots and relationships that cannot be explained by just reading the curriculum documents. Instead, going back in time and identifying people, contexts, and curricular policies allow us to understand the paths of a proposal, usually presented in different versions, until it becomes official in the form of a document that becomes a reference for teaching.

The investigation that tries to make intelligible processes and dynamics of production of new knowledge for teaching and teacher education contained in the official documents must face the challenge of opening the "black boxes", which means using a strategy of successive approximation based on historical analysis, addressing different scales of studies. Thus, at first, the investigation is linked to the analysis of governmental actions on a macro scale of observations of the international and national education policies. On the other hand, on a smaller scale, there is the study of the backstage of curricular production and the actions carried out by experts. Of course, these two levels are articulated.

Returning to the times of policies for new curricular productions and going into the backgrounds of the experts' document production, we will be able to understand the processes and dynamics of the construction of new knowledge for teaching and teacher education. In these terms, historical research helps us open the "black boxes". By opening them, the options present in the definition of the curricular documentation related to the new curricula - before the "black boxes" were closed, i.e., before the curricular documents became official references- may come to light.

The PCNs on a macro scale of observation: neoliberal policies

As of the 1988 Federal Constitution, Brazilian government representatives[3] adhered to neoliberal ideas, accepting the external interventions of the World Bank and IMF in their government projects (Figueiredo apud Przylepa, 2015). The precepts of the neoliberal ideology of the 1990s influenced different Latin American countries by imposing values based on the economic market, as the educational process needed to meet the demands of productive restructuring, subjugating human and national values (Portela, 2013). By this logic, the educational reforms would come to be per the demands of modern society and the world political framework. Although the PCNs (Parâmetros Curriculares Nacionais) were

[3] Remember that Brazil had as presidents Fernando Collor de Mello (1990-1992), Itamar Franco (1992-1994) and Fernando Henrique Cardoso - FHC (1995-1998 and 1999-2002).

DOI: 10.20396/zet.v30i00.8667446

published and effectively implemented in the governments of Fernando Henrique Cardoso (1995-2002), "from a legal point of view, the reform process of national education began to take shape in 1988, after the Constituent Assembly of 1987/ 1988 approved a new Federal Constitution" (Hermida, 2012, p. 4). So, it is in this macro context that we should think of the educational reforms of the period. They should translate, worldwide, elements such as compliance with general guidelines that have the curricular organization as one of its components, with the development of competencies, something broader than disciplinary knowledge (Pasello Valente, 2009).

The PCNs for elementary education were published during FHC's first term as president of Brazil (1995-1998), whose minister of education was the economist Paulo Renato Souza, a former vice-president of the Inter-American Development Bank and dean of the University of Campinas (UNICAMP).

In the same decade of the emergence of the PCNs, the Law of Directives and Bases of National Education (LDBN Law n. 9.394/1996) was enacted. This law had been approved by the Education Committee of the Senate, on November 30, 1994, in the previous government. Resolution n. 3/1997 also established guidelines for the New Career and Remuneration Plans for Education of the states, the Federal District and the municipalities. The Ten-Year Plan of Education for All (1993-2003) was also created at the time, and the Fund for the Development of Elementary Education and Valorisation of Education (FUNDEF[4]), created by Constitutional Amendment n. 14/96, regulated by Law n. 9.424/96 and by Decree n. 2.264/97, accounting instrument for school management, redistributive mechanism between states and municipalities of part of the resources linked to the elementary school, was implemented. The creation of FUNDEF intensified the municipalization process, and each municipality started to receive funds according to the number of students enrolled in its public network.

These reforms were aimed at social regulation and did not specifically focus on transformations to guarantee social equity. According to analysts, their reference knowledge was linked to the instrumental and utilitarian character (Przylepa, 2015). Thus, the reorganization of the Brazilian educational structure in the 1990s proposed an education focused on the world of work and production, constituting a bias towards neoliberalism (Chaddad, 2015).

In the 1990s, the world economy was in crisis due to the new pattern of accumulation and Brazil, until then, had not constituted a solid project to encompass the entire national education. On the other hand, international organizations offered financing to the social sectors of the underdeveloped countries in which Brazil belonged, to integrate education and work, according to the intended economic development. In this scenario, the World Bank was an intermediary to enable the transformations required by the new world order (Zanlorenzi & Lima, 2009).

[4] FUNDEF was replaced by the Fund for the Maintenance and Development of Basic Education and the Valorization of Education Professionals (FUNDEB) in 2006.

DOI: 10.20396/zet.v30i00.8667446

With regard to education, the neoliberal ideology was strengthened by the instrument of social control based on quality and productivity defined by standards, indicators, and measures. This is the broad context under which the National Curricular Parameters – the PCNs - were established (Moreira, 1997).

Zooming in

The initial movements that gave rise to the PCNs are linked to Brazil's participation in the "Education for All Conference[5]" held in Jomtien, Thailand, in March 1990. This event was sponsored, among others, by United Nations Educational and Cultural Organization (UNESCO), the United Nations Children's Fund (UNICEF), the United Nations Development Program (UNDP) and the World Bank (Brazil, 1997; Oliveira, 2009). The latter took the opportunity to establish its sponsorship policy that prioritized elementary education and defended the relativization of the state's duty to education. The National Conference on Education for All started to develop policy guidelines that included eliminating illiteracy, for which Brazil should follow the rules of the World Bank and the IMF in the production of curricular proposals. The "World Declaration on Education for All" was signed, and, as a result, the Ten-Year Education Plan was created. To support this action, the "National Week of Education for All" was held in Brasília, from May 10 to 14, 1993[6] (Pinto, 2002). So, in short:

> the National Curricular Parameters (PCNs) are inspired by the document prepared by the World Bank (BIRD) after the Jomtien Conference, called Priorities and Strategies for Education, reiterating the objectives of eliminating illiteracy, increasing teaching effectiveness, improving school attendance by recommending the reform of the financing and administration of education, starting with the redefinition of the government's role and the search for new sources of funds (Chaddad, 2015, p.19-20).

Three years after the Conference, Brazil also made the commitment of expanding basic education for the population through the New Delhi Declaration, signed on December 16, 1993, by the leaders of the nine countries with the largest population contingents in the world at the time, Indonesia, China, Bangladesh, Brazil, Egypt, Mexico, Nigeria, Pakistan, and India. Through the declaration, the leaders of those countries assured they would pursue with zeal and determination the goals defined by the World Conference on Education for All and the World Summit for Children, held in 1990, and would summon international collaborators to finance their actions.

[5] The event brought together the nine countries with the highest rate of illiteracy in the world (Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria, and Pakistan) where government representatives committed themselves to promoting educational policies (Shiroma, Moraes, Evangelista, 2000, p.57 *apud* Oliveira, 2009).

[6] Meeting that brings together the participation of bodies from the three spheres of the Brazilian government with the objective of guiding the creation of the Ten-Year Plan of Education for All.

DOI: 10.20396/zet.v30i00.8667446

The FHC government thought they needed to optimize investments in education, prioritizing elementary education at the expense of higher education. From the perspective of neoliberal thinking, they should focus on children in the ideal age group of schooling, leaving aside the education of young people and adults (Pinto, 2002). The emphasis on elementary education was also established in the Statute of Children and Adolescents (ECA), Law n. 8.069 of 7/13/1990, more specifically articles 57[7] and 58[8] .

It is true that the PCNs emerged in compliance with the "Ten-Year Plan for Education for All" (1993-2003), which, as per the 1988 Constitution, needed to carry out a curricular reform: "Ten-Year Education Plan, in line with what the Constitution of 1988 establishes, affirmed the need and the obligation of the State to create clear parameters for the curricular field" (Brasil, 2001, p.15).

The last lines sought to synthesize the national and global context of the expected guidelines for educational reforms, specifically from an already vast literature that analyzes the creation of the PCNs on a macro scale, from a broad perspective.

Given the political purposes defining the legal apparatus for the production of a curricular reference at the national level, there was a need to understand how those references were shaped, the choices and justifications for the construction of that official document, how disciplinary knowledge was placed in the new curricular parameters. Thus, it would be appropriate to reduce the observation scale so that it is possible to follow the steps that led to the PCNs. We intended to go behind the scenes of the production of this curricular proposal, focusing on the processes and dynamics that led to the elaboration of curricular references for the teaching of mathematics in the early school years.

The strategy to be considered by zooming in takes us to the individuals that participated in the development of what is now the national reference for the basic school curriculum. Following the trajectory and actions of the experts involved with the PCNs becomes fundamental for us to open the "black boxes" of the official documents.

Bringing the observation lens even closer: the PCNs and the experts

In 1995, when FHC took office as president, he entrusted the elaboration of the PCNs to the Secretariat of Elementary Education. This fact was justified because art. 210[9] of the

[7] Art. 57: The Public Power will stimulate research, experiences, and new proposals related to calendar, seriation, curriculum, methodology, didactics, and evaluation, with a view to the inclusion of children and adolescents excluded from compulsory elementary education.

[8] Art. 58: In the educational process, the cultural, artistic, and historical values specific to the social context of children and adolescents will be respected, guaranteeing them freedom of creation and access to cultural sources.

[9] Art. 210. Minimum contents will be established for basic education, in order to ensure common basic education and respect for cultural and artistic, national and regional, values.

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Brazilian Constitution did not define the individual or the instrument that would be used to establish the minimum contents and to enforce the guidelines of the Ten-Year Education Plan. In this way, the MEC assumed the role of protagonist in the development of the PCNs (Cury, 2002).

To begin structuring the PCNs, groups of teachers were organized by area. In mathematics, they first invited teachers Maria Tereza Perez Soarez[10] and Maria Amabile Mansutti[11] , and, later, professor Célia Maria Carolino Pires[12] was called to join the team . Thus, the mathematics curriculum for the first level of schooling – which corresponded to the first to the fourth grade of elementary school - began to be constructed.

Soares (2020) considers that the complexity of developing a national curriculum and the lack of curriculum specialists with such broad study experience in the team make them look for proposals from other countries. They gave special attention to the Spanish curriculum, and invited the Spanish professor César Coll for technical consultancy[13] .

Silva (1996, p. 199) describes the context in which The Brazilian government invited Professor Coll:

> (...) at the momento, the Spanish curriculum reform is the main cultural export of that country, insofar as it is serving as inspiration for similar reforms in several Latin American countries: Argentina, Brazil, Chile, Colombia and possibly others that are not known. One of the central persons in Spanish educational reform is Professor César Coll, who today travels through Latin America providing advice to reform teams in those various countries, including Brazil, influenced mainly by the current Brazilian President's daughter, Beatriz Cardoso, and Escola da Vila, a private school that serves the elite of São Paulo.

The Spanish reference, mainly Coll's, dates back to the contact established by Sérgio Haddad[14] for the production of an EJA curriculum, in 1994, through the NGO Ação

[10] Currently Superintendent Director of the CEDAC Educational Community. Educator since 1975. She was a teacher and pedagogical advisor in schools and responsible for the Teacher Education project in mathematics for the municipal education network of Jundiaí (SP).

[11] In a brief summary of her professional curriculum, Mansutti graduated in Pedagogy from the University of São Paulo and specialized in Mathematics Didactics from the Pontifical Catholic University of São Paulo (PUC-SP). She made her career in the municipal network of the capital of São Paulo as a teacher, education technician, and manager.

[12] Master in Mathematics from PUC-SP and PhD in Education from the University of São Paulo. She worked as a mathematics teacher in basic education of the public network of the state of São Paulo and in higher education, in institutions such as PUC/SP, Cruzeiro do Sul University, and Federal University of Mato Grosso do Sul. She passed away on May 18, 2017.

[13] César Coll - professor at the University of Barcelona, was the mastermind of the Spanish educational reform. Assistant professor and collaborator at the International Center for Genetic Epistemology, in the 1970s, under the direction of Jean Piaget, at the University of Geneva (COLL, 1996, p. 201).

[14] Professor of the Graduate Program at PUC/SP, he was at the time the Executive Secretary of the NGO Ação Educativa.

DOI: 10.20396/zet.v30i00.8667446

Educativa[15] . "Ação Educativa carries out documentation, produces and disseminates information, develops research, provides advice, trains educators, and prepares educational materials" (Haddad, 1995, p. 128). At the time, a literacy program for young people and adults was developed in the north and northeast of Brazil, based on the Spanish EJA curriculum, i.e., one year before the beginning of the PCNs creation. The program later turned into the EJA curriculum of the Ministry of Education. The first steps in structuring the PCNs were linked to the EJA project, and it was from there that the team of consultants for the PCNs was formed (Mansutti, 2020).

Professor Coll's participation in the team of consultants in the development of the PCNs for Elementary Education can also be credited to the intermediation of one of FHC's daughters, as mentioned by Silva (1996), cited above - who worked at Escola da Vila in its beginnings, and to the fact that this institution promoted meetings with the Spanish specialist in Brazil (Revah, 2008). In this sense, the text published in the newspaper Folha de São Paulo, by Fernando Rosseti, on August 15, 1995, revealed that, in the International Seminar "Constructivism in the School Curriculum", organized by Escola da Vila, in August of that year, Cesar Coll was identified as an advisor to the MEC regarding the PCNs. The Ministry had asked for his opinion on the preparation of such documents since, as mentioned by Silva (1996), at the time, he was an international reference. In the interview, Coll mentioned two peculiarities related to the construction of the PCNs: the first, because they were an official reference, and teachers were not obliged to comply with it; and the second, because they were being developed by teachers with classroom experience, not just by university and academic specialists.

With Coll's referrals regarding the structuring of documents and the complexity of the work to be carried out, the number of specialists who came to contribute to the preparation of the PCNz increased. In this way, the number of experts multiplied. So, MEC's Secretariat of Elementary Education summoned "about 60 scholars of Brazilian education and more representatives from Argentina, Colombia, Chile, and Spain, countries in which curricular changes were recently promoted, to discuss the idea of instituting a national curriculum in Brazil" (Moreira, 1996, p.10).

Also in 1995, besides hiring specialist consultants to provide subsidies for the preparation of the PCNs, the government asked the Carlos Chagas Foundation to analyze the curricular proposals for the then called the 1st degree, i.e., elementary school (6 to 14 years old) (Barreto, 2020; Bonfim et al., 2013). In this study, the curricular proposals of 21 states and the Federal District were analyzed, as well as the proposal by some municipalities, including Belo Horizonte, São Paulo, and Rio de Janeiro, due to a preliminary appraisal that

[15] Founded in 1994 in São Paulo by members of the Ecumenical Center for Documentation and Information (Cedi), which worked with popular and pastoral movements, the NGO Ação Educativa is a non-profit civil association that works in the fields of education, culture, and youth from a human rights perspective.

DOI: 10.20396/zet.v30i00.8667446

indicated that there were innovative processes contained in these municipal documents (Galian, 2014).

In an interview with professor Elba Barreto, coordinator of the work developed by the Carlos Chagas Foundation, in June 2020, there is information that even before the Federal Government requested the research of curricula at the national level, there were articulations and contacts between MEC, the Foundation, and UNESCO. On the other hand, effectively, according to Barreto (2020), the research was carried out concomitantly with the preparation of the PCNs. However, although there was an initial understanding that the Carlos Chagas Foundation would carry out a subsidy study to find out what was taught in state and municipal education networks, the work ended up being deferred for reasons of time of the official schedule of the PCNs. The Foundation's research was presented even when the PCNs were not completely finalized, but the references of the Spanish curriculum prevailed in the construction of the documents. nased on more Piagetian and less sociological references, it recommended that all children should finish basic education. The survey carried out by the Carlos Chagas Foundation, in fact, was of little use to the final text of the PCNs. On the other hand, the work was used as a reference to legitimize the process of construction that curriculum proposal (Barreto, 2020).

Following the experts and looking for the backstage of the production of the PCNs - mathematics

Taking the PCNs Technical Sheet – Mathematics for Elementary School, on pages 141, we read the name of professor Maria Tereza Perez Soares as one of the members of both the coordination and document creation team, and the indications of Célia Maria Carolino Pires and Maria Amabile Mansutti as members of the team to prepare those curricular references. So, let us get a little closer to them to try to enter the backstage of the preparation of the PCNs.

Amabile Mansutti recalls that when FHC won the elections as president of Brazil in 1994, that same year, his political party, the PSDB, held a political meeting with the participation of several educators from the state of São Paulo, including proferros Iara Glória Areias Prado, who took office later as Secretary of the Elementary Education of the Ministry of Education (Mansutti, 2020).

Due to the link between professor Iara and Escola da Vila, in São Paulo, some teachers who worked there were invited to prepare the first versions of a curriculum for elementary school. Escola da Vila, a private institution, followed the proposal of constructivist teaching. It was created in the Vila Madalena neighborhood, in São Paulo, a region historically recognized for its alternative cultural manifestations. In the late 1980s, that educational institution opposed traditional education. It was a space where students were not subjected to training but were led to be competitive in the mercantile world (Revah, 2008). Mansutti highlights that Escola da Vila was an institution of reference in teaching; through it,

DOI: 10.20396/zet.v30i00.8667446

many of its employees left the country in search of training. Moreover, Escola da Vila also offered courses bringing teachers/professors from abroad (Mansutti, 2020).

At first, the group formed by professor Iara intended to build a more restricted proposal, a mathematics program, but, with the evolution of reflections and political needs, the group decided to prepare a document of national scope. Thus, the idea of creating the PCNs was born. Among the justifications for such action was the recognition of the SAEB, an evaluation that was aligned with the policy through tests and exams, parameterizing the production of books and teacher education, and other decisions of educational policies. Hence, there was an appraisal, but there was no national curriculum basis for teaching reference. At that time, the states directed their curricula based on the curriculum issued by the National Education Council. We remark that, until 1995, there was no national reference for curriculum guidance in Brazil for the "27 state education secretariats and 5,600 municipalities" (Prado, 2000, p. 95). Only in December 1996 the Law of Directives and Bases for National Education was enacted, determining the responsibility of the Union, in collaboration with states and municipalities, to organize guidelines for the curricula with the purpose of a common basic education.

To a large extent, it is possible to attribute to the trio of professors, Maria Tereza Perez Soares, Amabile Mansutti, and Célia Carolino, the systematization of the proposals for the PCNs-Mathematics for the first school years. In Maria Tereza's words, "we consulted Prof. Nílson Machado, from FEUSP, in terms of assessing what we were doing, but he soon concluded that we would perfectly handle the task and there would be no need for his intervention" (Soares, 2000).

Regarding the structuring of the team of PCNs developers of the first and second cycles of elementary school, Perez Soares reveals that 32 professionals participated. They are all named in the Technical Sheet, on page 141. She points out that of this total, only eight of them were teachers at Escola da Vila, while the others were faculty members, which disagrees with the statements of some analysts that mentioned the central role played by the basic school teachers in the preparation of the PCNs (Soares, 2020).

After the drafting of the preliminary version, copies of the document were distributed to be assessed in several instances: universities, professors, representative bodies, among others. After receiving the reviews on the preliminary version of the PCNs, however, there was no feedback to each one of them. A general feedback to the participants of the analysis was prepared, with the justification that the suggestions aligned with the conception of learning and epistemological basis coming from Piaget, Vygotski, and Ausbel (Soares, 2020) had been accepted.

Apparently, the participation of professor Célia Maria Carolino Pires in the team of systematizers was due to her contributions and experiences from the 1980s in the development and implementation of curricular proposals in the state of São Paulo and her role in the Coordination of Studies and Pedagogical Norms (CENP) as technician and coordinator of the First Degree team. In 1995, she was a faculty member of the Pontifical

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Catholic University of São Paulo (PUC-SP) and, in the same year, she was invited to participate in the development of the National Curriculum Parameters (PCN) of Mathematics for Elementary Education. Célia Carolino Pires had experience in curricula development, so much so that she had participated in the construction of the mathematics curriculum project organized for the initial years of São Paulo, which had as mentors the French professors from the INRP - Institut National de Recherche Pédagogique of Paris (Britis, Godoy, & Vianna, 2019).

According to Pires, in relation to the PCNs, "we sought to express the contribution of investigations and experiences in the area of mathematics education" (Pires, 2008, p. 26).

The National Curriculum Parameters for the 1st to the 4th grades were published in 1997 by the Ministry of Education and Sports (MEC). The preliminary version, prepared by technicians linked to the federal government, began to circulate in November 1995 (Velosso, 2012). A new version was presented in August 1996 and discussed in regional meetings with teachers/professors, specialists, and teams from state and municipal education departments (Galian, 2014).

Those documents intended to present a ministerial proposal for constructing a common national base for elementary education and also to be an instrument of guidance in the formation of school curricula. The final version was presented for deliberation by the National Education Council in September 1996, and in October 1997, President Fernando Henrique Cardoso announced the distribution of the document to all teachers (Galian, 2014).

Getting even closer to the background of the construction of the PCNs, we find the disputes and clashes at different levels regarding the proposal. The first clash involves the curriculum design itself. In an interview, Amabile Mansutti reveals acute tensions between the professionals who worked in the preparation of the PCNs, researchers, and Brazilian representative bodies called upon to give their opinion on the draft version of the document. One of these tensions turned to the theme of curricular autonomy. Some argued that those PCNs would make states and municipalities lose their freedom in drawing up their own proposals (Mansutti, 2020).

Other broad-based clashes also occurred in terms of political issues and, in the words of Professor Tereza Perez, the group responsible for the PCNs in mathematics was not organically linked to political issues, being strictly concerned with curricular ones. But the impact and ideological debates proved intense (Soares, 2020).

There were also tensions linked to educational research on teacher education and the development of the PCNs by the experts. Here, as an example, it would be appropriate to cite the review made by Professor Gelsa Knijnik (UFRGS), based on the opinion she issued on the preliminary version of the PCNs, where she highlights:

> (...) the ineffectiveness of the production of the PCNs to constitute "a reference to guide teachers in planning and reviewing their practice". Here, it seems that there is an oblivion of an entire area of educational research that indicates exactly the other direction. There are many investigations in the area of teacher education and/or continuing education, which, supported by empirical research, have highlighted the

DOI: 10.20396/zet.v30i00.8667446

> little repercussion of printed materials produced by teams of "some enlightened ones" in the processes of educational change (Knijnik, 1996, p. 254).

Along with those broad clashes, there were those specific to the mathematics systematized for teaching. There was, for example, a great deal of discussion related to the teaching of rational numbers. Until then, in Brazilian curriculum proposals and textbooks, fractions were taught first, flowed by the decimal numbers. With the proposal suggested in the PCNs, the order of the process was reversed following influences from French literature. The option for this organization of mathematics to be taught was justified by the authors of the PCNs in terms of the social relevance of decimal numbers. This modification was the reason for clashes that were recorded in the reviews given in the first version of the document. Elon Lages de Lima, a renowned mathematician from IMPA, RJ, was one of those specialists who opposed the change (Mansutti, 2020).

Even with many clashes and discussions, the area of mathematics teaching was able to proceed with the initial referrals, something different from other areas, such as History and Portuguese. However, the disputes that followed were such that they made it impossible to continue the work. Thus, the teams were changed. In Mansutti's words (2020), there seems to have been a tacit agreement between those involved in reviewing the mathematics PCNs to consider that the document represented an advance in what was laid down for the teaching of the subject.

Final considerations

Apparently, the first intentions of constructing the PCNs as a new curricular proposal should break with tradition: they would start from the suggestions given by teachers working in the first school years. A curricular proposal would be made from and for teaching. This attempt included teachers from an innovative private school in São Paulo. This work would be taken as a reference, within the scope of the avant-garde schools of São Paulo, and would be expanded for the construction of a new curricular proposal for Brazil.

The presence of academics soon seems to have aligned the initial proposal with international trends and the directives already scrutinized by the curriculum brought by César Coll. The initial clash between the professional field of teaching represented by this collective of teachers and the academic field soon removed the curricular construction based on teaching, on the experiences that were being taken in the school routine. The entry of professor Célia Carolino Pires in the team responsible for the PCNs of mathematics for the early school years brought the debates to the field of universities, their professors and representatives, the exponents of the disciplinary fields. A discourse that best met the logic of university knowledge would have to be constructed to guarantee the scientific legitimacy of the proposal. This is our first conclusion.

We must also get closer into the backstage of that curricular production, which the research movement intended to carry out, in the characterization of the processes and dynamics of the production of new knowledge for teaching and teacher education. We must

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analyze the details, the clashes and the choices made to, for example, expand the understanding of the blocks of content that support the proposal. To this end, new sources for research must be built from more documents and speeches of the characters involved in the process.

In any case, the attempt to penetrate the universe of curricular production shows us different dimensions, different scales of observation. Certainly, there is no curricular change without some kind of political movement to promote it. On the other hand, the new curricular knowledge cannot be understood only by macro, political determinations. In the case of the PCNs, as seen in a large-scale analysis, there were international curricular changes. We witnessed funding from international agencies to develop new curricular projects entering the scene. This macro movement was followed by the national reading of how to develop a curriculum that could meet global trends. Soon, the parallel with the trendy reference of the time– the Spanish proposal – gained space. Between the fulfillment of macro educational policies and the organization of the teaching pace, of the guidelines to teachers, there was a complex process involving advisory services. They multiplied, and studying the background of their actions became too complex. *Experts* from different levels appeared: international, national, and even experienced teachers/professors and those working in the school's day-to-day activities were called to participate in the development of the PCNs. As of this summoning, the choices were something different: the way of pondering, accepting or rejecting suggestions for modifications of the first versions given by the reviewers. There is still a large list of documentation that needs to be inventoried and studied, as mentioned earlier.

In any case, we consider that this text constitutes the first attempt to approach the backstage of the development of the PCNs-Mathematics for the initial school years. Much remains to be done to build a narrative that further clarifies the processes and dynamics of the production of new knowledge for teaching and education of teachers who teach mathematics. The "black box" still needs further opening.

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