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Recent reforms in the curriculum guidelines for mathematics in Portugal

Reformas recentes nas orientações curriculares de Matemática em Portugal

Reformas recientes en las directrices curriculares de matemáticas en Portugal

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Abstract: The article in question deals with the construction process of the Mathematical Curriculum Programs and Goals for Basic Education, concluded in 2013, and the Essential Apprenticeships concluded in 2018, in Portugal, prescribed curricular documents, whose constructions showed political components and which are being the subject of many conflicts and tensions in the context of the country. For the study, the policy cycle approach, formulated by Stephen J. Ball and collaborators, has been frequently used by curricular policy researchers, among other fields, configuring a relevant methodological bias for understanding the approval processes of documents from the contexts of production and influence, as well as the paradigms that guided these constructions and the ideological constraints that result from the international reform agenda. To achieve this objective, positions were analyzed through public letters and reports from entities at specific times during the processes of recent reforms of the documents prescribed for mathematical learning in Portugal. The study raised reflections on the vertical models, redemptions of curriculum documents that are no longer in force, the contents as instruments of management and performance, as well as the silencing of voices of educational entities during the reform processes.

Keywords: Educational Entities. Policy cycle. Mathematics curriculum reforms in Portugal.

Resumo:O artigo em tela trata sobre o processo de construção dos Programas e Metas Curriculares de Matemática para o Ensino Básico, concluídos em 2013, e as Aprendizagens Essenciais concluída em 2018, em Portugal, documentos curriculares prescritos, cujas construções evidenciaram componentes políticos e que vêm sendo alvo de muitos conflitos e tensões no contexto do país. Para o estudo foi adotado a abordagem do ciclo de políticas, formulada por Stephen J. Ball e colaboradores vêm sendo frequentemente empregada por pesquisadores de políticas curriculares, entre outros campos, configurando-se em um viés metodológico relevante para compreensão dos processos de homologação dos documentos a partir dos contextos de produção e influência, bem como os paradigmas que nortearam essas construções e os constrangimentos ideológicos que resultam do agendamento internacional de reformas. Para atingir esse objetivo, foram analisados posicionamentos concedidos por meio de cartas públicas e reportagens de entidades em momentos específicos durante os processos de recentes reformas dos documentos prescritos para a aprendizagem Matemática em Portugal. O estudo suscitou reflexões sobre os modelos verticalizados, resgates de documentos curriculares não mais vigentes, os conteúdos como instrumentos de gestão e performatividade, bem como o silenciamento de vozes de entidades educacionais durante os processos de reformas.

Palavras-chaves: Entidades Educacionais. Ciclo de políticas. Reformas curriculares de Matemática em Portugal.

Resumen: El artículo en cuestión trata sobre el proceso de construcción de los Programas y Metas del Currículo Matemático para la Educación Básica, concluidos en 2013, y los Aprendizajes Esenciales concluidos en 2018, en Portugal, documentos curriculares prescritos, cuyas construcciones evidenciaron componentes políticos y que están siendo objeto de estudio de muchos conflictos y tensiones en el contexto del país. Para el estudio, el enfoque de ciclo de políticas adoptado por Stephen J. Ball y colaboradores ha sido frecuentemente utilizado por investigadores de políticas curriculares, entre otros campos, configurándose en un sesgo metodológico relevante para comprender los procesos de aprobación de documentos desde los contextos de producción e influencia, así como los paradigmas que guiaron estas construcciones y las limitaciones ideológicas que resultan de la programación internacional de reformas. Para lograr este objetivo, se analizaron posiciones a través de cartas públicas e informes de entidades en momentos específicos durante los procesos de reformas recientes de los documentos prescritos para el aprendizaje matemático en Portugal. El estudio dio lugar a reflexiones sobre modelos verticales, rescates de documentos curriculares que ya no están vigentes, contenidos como instrumentos de gestión y desempeño, así como el silenciamiento de voces de entidades educativas durante los procesos de reforma.

Palabras clave: Entidades educativas. Ciclo de políticas. Reformas matemáticas en matemáticas en Portugal.

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INTRODUCTION

In this article, the objective is to discuss the recent Curricular Reforms in Mathematics that occurred in Portugal, specially, around the following issues:

(a) What were the contexts of production and influences of documents recently prescribed for the teaching of Mathematics in Basic Education?

(b) What disputes, references and ideologies are being put into play in the production processes of the Portuguese Mathematics programs for Basic Education?

(c) What are the positions and conflicts between the entities related to the Mathematics area about the recent reforms of the curriculum guidelines in the country?

This objective was problematized based on the understanding that these prescribed curricular documents emphasize perspectives aimed at an attempt to meet the demands of the globalized world, where professors and entities are normally not involved in the construction processes and multilateral political bodies drive these processes, aiming, among others, rankings in evaluations.

The prescribed curriculum is understood here in the same way as Macedo (2002, p. 171), that is, as ‘a document that legitimizes the school's own existence, even though it is known that the real curriculum goes far beyond the official document [...]’. This choice is justified by the complexity of the diversity of factors involved in the development and development of curricula, in which the programs intend to account for their educational pathways.

In this text, this definition was adopted to analyze contexts and challenges that are presented by the Portuguese scenario in the face of reforms in the prescriptions of Mathematics. In this way, priority is initially given to purposes related to the type of student to be trained.

Thus, through the approach of part of the Policy Cycle developed by Ball (1994), speeches issued through public letters and reports will be analyzed, which showed

tensions in the contexts of influence and production of the recent reforms of the current curricular guidelines for teaching of Mathematics in Portugal.

METHODOLOGICAL APPROACH

Regarding the delimitation of the research method, were constituted the characterization of the cycle of policies, positions and tensions of Portuguese educational entities such as the Portuguese Mathematical Education Society, the Association of Mathematics Teachers (APM) and the Portuguese Mathematical Society (SPM), aiming at an analysis of the speeches that circulated during the document reform processes. According to Sharma (2013), this analysis is configured as:

> A way to collect qualitative information from a primary or original source of written, printed and recorded materials to answer research questions in interpretive case studies. The documents provide evidence of authentic or real activities carried out in social and human thought organizations (Sharma, 2013, p. 3).

In this sense, the Ball's Policy Cycle (1994) offers instruments for the analysis of the policy trajectory (formulation, text production, implementation, and results) in an attempt to understand the impregnated curriculum policy. Mainardes (2006) characterizes it as:

> [...] a continuous cycle consisting of three main contexts: the context of influence, the context of text production and the context of practice. These contexts are interrelated, do not have a temporal or sequential direction and are not linear steps. Each of these contexts presents arenas, places, and interest groups and each of them involves disputes and clashes (Mainardes, 2006, p. 5).

The investigation was constituted by a documentary analysis of the contexts of influences and production of Ball (2004), through positions published by the entities and speeches that circulated through reports. From the last context of production, the following analytical subcategories emerged from the intentions and discourses

expressed in the reforms that have been carried out in Portugal: (1) Curriculum development processes (degrees of intervention), (2) Lines of force of the new programs and (3) Critical points of the new programs.

CONTEXT OF INFLUENCES OF CURRICULAR REFORMS IN PORTUGAL

The pedagogical discourse, interpreted as a set of prescriptions, rules and mechanisms of power, should also be considered as an object of analysis, as Ball maintains (2013, p. 177): 'Therefore, new voices and interests are represented in the political process, and new nodes of power and influence are built and strengthened '.

In this perspective, the composition of a cycle of policies is taking shape and embracing new voices, such as the voices of private entities and international agencies, which articulated and financed the construction of curricular documents. In this sense, Mainardes (2018), warns that:

> [...] the context of the political strategy involves the identification of a set of social and political activities that would be necessary to deal with the inequalities created or reproduced by the investigated policy. Therefore, it involves a purposeful exercise based on research data and findings. (Mainardes, 2018, p. 14)

Analyzing and reflecting on educational policies leads to contradictory terrains, involving heuristic technologies and resources. In order to try to understand how they were designed and what their real intentions are, it is necessary to understand the processes and contexts in which these policies were built. Their nature is not anodyne, as it reflects the political contexts in which they were produced (Ball, 1994).

The context of influence (Ball, 1994) pervades the way in which the construction process was conducted and approved based on public policies. In the view of Mainardes (2006):

> Spaces where political discourses are constructed. It is in this context that interest groups compete to influence the definition of the social purposes of education and what it means to be educated […]. It is also in this context that the concepts acquire legitimacy and form a basic discourse for politics (Mainardes, 2006, p. 51).

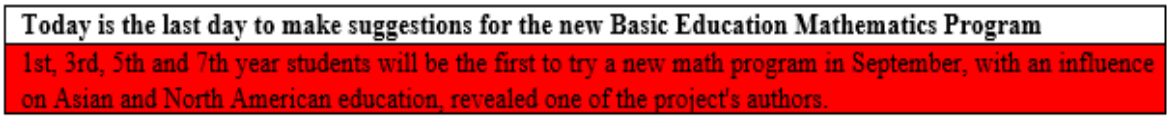
Such composition shows that between the lines the intention of implementing the reforms was based on the performance model for success. In this sense, in Ball's view (2010, p. 38), 'performances - of individual subjects or organizations - serve as measures of productivity or results, as ways of presenting quality or moments of promotion or inspection'.

Recent transnational policies operate in integrated networks, minimizing the role of the State with an arsenal that refers to efficiency. This process is traversed in speeches that raise the eyes of agents of curricular reforms with the promise of contemporaneity through the perspective of a supposed privatist 'superiority'. Corroborating Corrêa and Morgado (2018, p. 8), it is believed that such superiority 'lies in the fact that international experiences and references from private education groups, which produce the false idea of reliability, effectiveness and efficiency in the construction of other models curriculum in different countries'.

Studies, such as those by Seabra (2015), Pacheco & Seabra (2014), Seabra, Morgado & Pacheco (2012), point to Portugal being configured as a semi-peripheral country subject to a double agenda - on the one hand, the global agenda, on the other, the European agenda -, being particularly subject to the homogenizing effects of globalization. According to the authors, the Europeanization of education in the country has led to a recent centralization of curricular control through evaluations (Pacheco & Seabra, 2014), a return to the curriculum core, increased control over the disciplines that integrate it and policies curricula oriented towards learning outcomes (Seabra; Morgado & Pacheco, 2012).

According to Seabra (2015, p. 8), 'in curricular terms, there has been a strong recentralization in the core curriculum, a growing focus on external evaluation and on the assessment of learning results, through the curriculum goals'. Morgado (2013) still reinforces that it is a process not only of revising the curriculum structure of Basic and Secondary Education, but of a process with 'intention of reform' (Morgado, 2013, p. 226).

During the public consultation process of the PMCMEB (2013), the international influences that permeated the proposal were announced in a newspaper in the country, as shown in Figure 1.


Today is the last day to make suggestions for the new Basic Education Mathematics Program

1st, 3rd, 5th and 7th year students will be the first to try a new math program in September, with an influence on Asian and North American education, revealed one of the project's authors.

Figure 1: Influences disclosed in the PMCMEB public consultation process (2013).

Source: ionline Journal

According to this same report, one of the subjects participating in the reform process informed that the PMCMEB (2013) was influenced by the school curricula of Education in Asia and the United States of America.

Seabra (2015) also points out that, in recent years, trends in the Portuguese context have led to a commodification of education and curriculum, seen in the light of the theory of human capital as instruments for promoting productivity, and the establishment of a culture of performativity in schools (Ball, 2004), culminating in a dependence on curricular and pedagogical autonomy due to the presentation of results.

In his studies, Seabra (2015) states that the naturalization of decisions made locally and their externalization - to global contexts or to the guidelines given by large statistical studies, or international standards, at the level of example, has been highly considered by decision makers in local contexts (legitimation).

The external pressure to adhere to certain concepts or currents, however, becomes much more real and urgent in countries that are experiencing economic difficulties and that accept, as part of an economic aid package, a set of counterparts in terms of education (mandate) (Steiner-Khamsi, 2010 apud Seabra, 2015). The way in which these externally imposed reforms are implemented locally is nevertheless relevant when it comes to globalization in education (Seabra, 2015).

Another political influence in Portugal is the Trends in International Mathematics and Science Study (TIMSS). TIMSS, which uses the curriculum as the organizing concept of its evaluation framework (Mullis, 2013), has a strong influence on curriculum reforms and led 'the ambitious task of analyzing the guidelines of curricula, programs and manuals, developing a powerful comparison tool for analysis '(Schmidt et al., 1997, apud Keitel; Kilpatrick 1999, p. 75).

Curriculum reforms tend to continue to be subject to international influences, involving organizations such as the International Student Assessment Program (PISA), with a focus on mathematical literacy, and the OECD.

The OECD's 'Future of Education and Capabilities 2030' project is currently underway, with speeches focusing on 'technologies that have not yet been invented, and solving social problems that have not yet been anticipated'(OECD, 2018 , p. 1), as well as providing supposed support to countries in addressing common curriculum implementation challenges and in identifying critical success factors.

Strand 1 of the project refers to the development of a learning framework for Mathematics 2030, and strand 2, in the Analysis of International Programs, aiming at building a knowledge base that will allow countries to make curriculum design processes more systematic, that is, supporting peer learning and evidence-based debates.

Likewise, the Mathematics Curriculum Document Analysis (MCDA) project is underway, which aims to investigate the extent to which countries incorporate perspectives on Mathematical Literacy and Capabilities of the 21st century in its

current curriculum, using a framework developed with PISA 2021, which created in 2016 a Curriculum Redesign Center (CRC).

CONTEXT OF PRODUCTION OF RECENT MATHEMATICS PROGRAMS

Dias (2016, p. 39) warns that 'the researcher cannot do without satisfactorily knowing the political situation that led to the production of a certain document'. Mainardes (2006, p. 5) adds that 'the political texts are the result of disputes and agreements, since the groups that operate within different places of the production of the texts compete to control the representations of politics', for what we will bring, in a brief description, legal aspects, resistance notes, as well as the structure of mathematics documents in Portugal.

In Portugal, according to the General Directorate of Education (DGE), the last Review of the Curricular Structure, legitimized in Decree-Law No. 139/2012, of 5 July, as well as in Order No. 5306/2012, of 18 April, provided for improvements in the quality of teaching and learning through a culture of rigor and excellence. In order to realize these intentions, the Curricular Goals for Mathematics for Basic Education (MCMEB, 2012) were elaborated, where general objectives were specified, specified by descriptors, in a concise manner for precise and evaluable performances.

The MCMEB (2012) were built based on the thematic content expressed in the 2007 Basic Education Mathematics Program. In this document, several general objectives and respective descriptors were designed in order to establish links between content without an evident relationship between them, in the session 'Mathematics as a coherent whole', emphasizing that:

> [...] In addition to the situations that are explicitly illustrated in the Curricular Goals, others can be worked on in the scope of exercises and problems. These activities are conducive to the understanding that Mathematics is constituted by a complex network of relationships that gives it a very particular unity (MCMEB, 2012, p. 5).

In that document, ‘the contents are organized, in each cycle, by domains. The desirable articulation between the content domains and the objectives stated above is materialized’ (MCMEB, 2012, p. 5).

SPIEM, by means of a public letter, opposed the MCMEB (2012), as shown in figure 2, highlighting errors and setbacks in the curriculum document proposal.

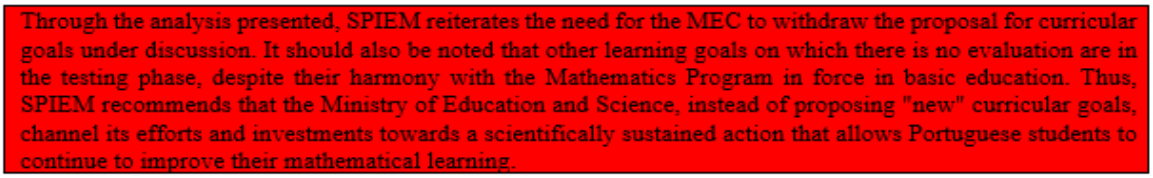

Through the analysis presented, SPIEM reiterates the need for the MEC to withdraw the proposal for curricular goals under discussion. It should also be noted that other learning goals on which there is no evaluation are in the testing phase, despite their harmony with the Mathematics Program in force in basic education. Thus, SPIEM recommends that the Ministry of Education and Science, instead of proposing "new" curricular goals, channel its efforts and investments towards a scientifically sustained action that allows Portuguese students to continue to improve their mathematical learning.

Figure 2- Opinion on the document ‘Curricular Goals’ for Basic Education – Mathematics.

Source: SPIEM (2012)

The opinion released by SPIEM points out that the MCMEB's proposal (2012) presents mismatches regarding the main advances in national and international research in the area. The main criticisms of the document were: mathematical reasoning limiting students' experiences, absence of perspectives for the development of algebraic thinking, predominance of formal mathematical language, disregarded estimation and mental calculation, problem solving placed in a secondary place, devaluation of the organization and data processing and the lack of emphasis on visualization in Geometry.

Carvalho and Lourenço (2018), point out that the experts silence the voices of teachers in a game in which there is a stimulus to the participation of teachers in order to, by making them speak, legitimize the experts' discourse and, under an apparent participation, keep them in consultation, without effective decision-making power over vertically imposed models.

The reform through the MCMEB (2012) gives rise to an education for adaptation in a market logic (Seabra, 2015), ultra-liberal, disregarding the vision and the role of the

educational entity of mathematical educators, respectively, in the construction processes and consequently in the implementation of the remodeling.

On curricular reforms at the global level, Venco and Carneiro (2018, p. 7) warn that it is the 'adoption of a neoliberal project for education, which pursues international demands focused on the logic of measuring results and worldwide standardization of education'. Silva (2018, p. 10) warns that, from the perspective of neo-technical pedagogy, there is control - over directors, teachers and students - via evaluation of international performance standards, in addition to accountability and payment techniques for meritocracy, combined with privatization; elements that, if implemented, are supposed to guarantee quality in the provision of education. According to Ball (2014),

> [...] at the interface between educational policy and neoliberalism, money is everywhere. As I indicated, politics itself is now bought and sold, it is a commodity and an opportunity for profit, there is a growing global market for policy ideas. Policy work is also increasingly being outsourced to for-profit organizations, who bring their skills, speeches and sensitivities to the field of politics, for an honorary fee or a contract with the State (Ball, 2014, p. 222).

In this sense, Passos and Nacarato (2018, p. 132) also point out that 'although the reference matrix for external evaluations is not intended to guide what should be taught in schools, the tension caused by the imposition of a common curriculum, strengthened by the 'provision of lesson plans', by certified 'teacher training' from the business sector, indicates a worrying scenario'.

About the Basic Mathematics Curriculum Program and Goals (PMCMEB, 2013), DGE highlights that it was built based on the thematic content expressed in the 2007 Mathematics Program (PMEB, 2007) and that the organization of these contents, in a hierarchy that is announced as coherent and consistent, created gaps between this Program and the Curriculum Goals, which is why the PMCEB emerged, which constitute the legal and mandatory rules. Figure 3, below, shows the structure of the PMCMEB (2013).

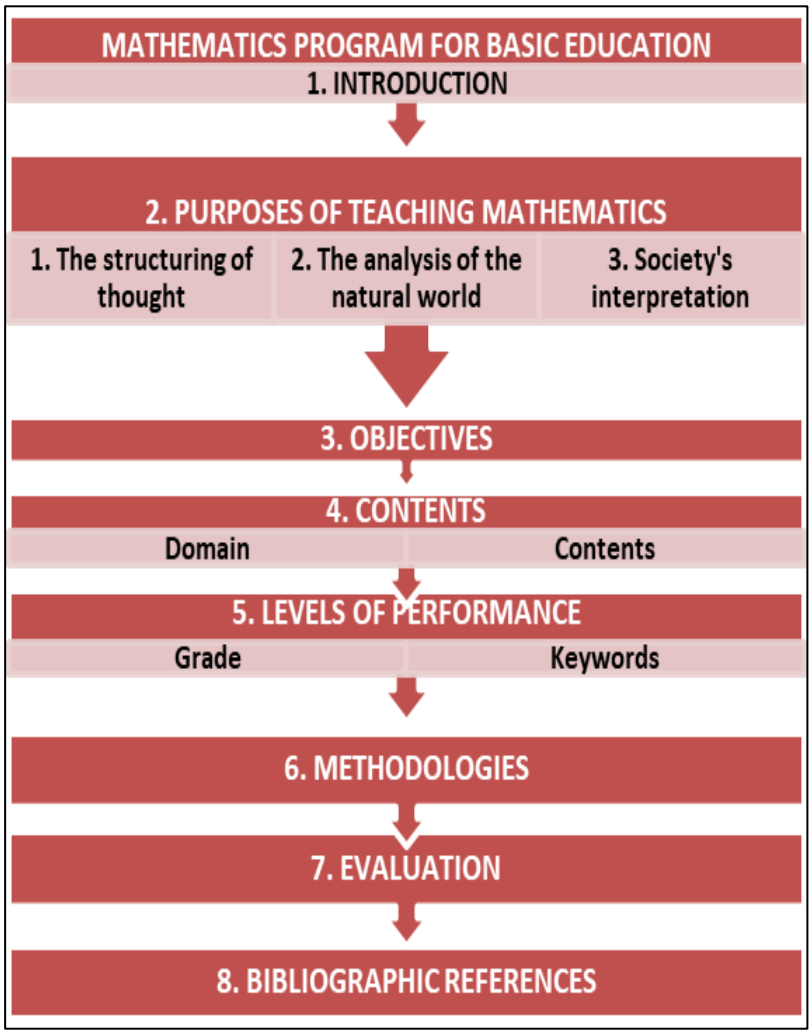


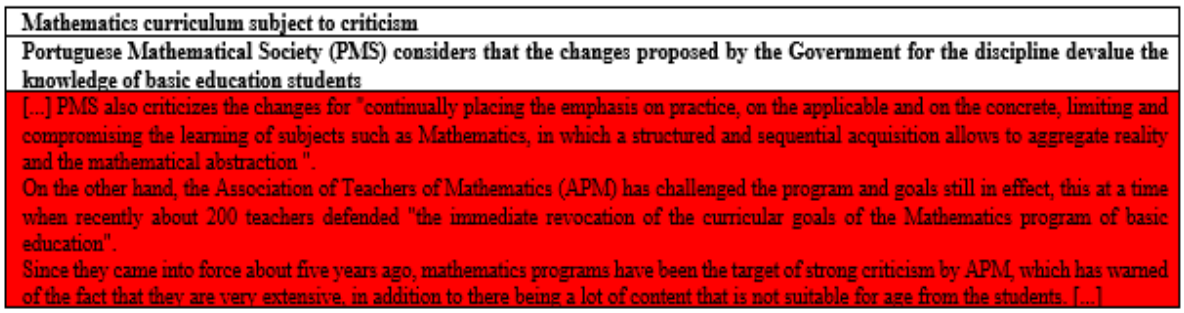
Figure 3- Structure of the PMCMEB (2013) in Portugal.

Source: The author, from the PMCMEB (2013)

More recently, the Curriculum Management Guidelines for Basic Education are configured as guidelines for the discipline of Mathematics and are governed by the PMCMEB (2013).

These documents introduce general methodological guidelines, as well as proposals for curricular flexibility and content management with indications that should be considered according to the school context. Figure 4 highlights the tensions

between APM and SPM (Portuguese Mathematical Society) over the PMCMEB (2013) six years after implementation.



Mathematics curriculum subject to criticism

Portuguese Mathematical Society (PMS) considers that the changes proposed by the Government for the discipline devalue the knowledge of basic education students

[...] PMS also criticizes the changes for "continually placing the emphasis on practice, on the applicable and on the concrete, limiting and compromising the learning of subjects such as Mathematics, in which a structured and sequential acquisition allows to aggregate reality and the mathematical abstraction ".

On the other hand, the Association of Teachers of Mathematics (APM) has challenged the program and goals still in effect, this at a time when recently about 200 teachers defended "the immediate revocation of the curricular goals of the Mathematics program of basic education".

Since they came into force about five years ago, mathematics programs have been the target of strong criticism by APM, which has warned of the fact that they are very extensive, in addition to there being a lot of content that is not suitable for age from the students. [...]

Figure 4- Recent criticisms (2018) of the PMCMEB (2013) in Portugal.

Source: Diário de Notícias de Portugal

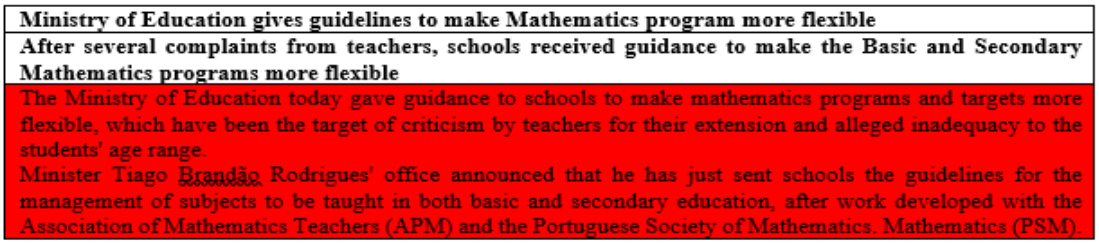
According to DGE, the adoption of PMCMEB (2013) raised a number of issues and the signaling of several problems by Schools and teachers, calling into question the feasibility of these documents, highlighting that:

> The main problems identified were related to the extension of the Program (which did not enhance the consolidation of learning by students), the anticipation of content and the inadequacy of some content to age groups. In order to respond to the numerous requests addressed to the various Central Services of the Ministry of Education, as well as to safeguard the interest of students, the Mathematics Working Group for Basic Education was created, with a view to producing guidelines for the management of curricular documents in force. The Working Group included elements from the Portuguese Mathematical Society, the Association of Mathematics Teachers and Mathematics teachers from Basic and Secondary Education in exercise, coordinated by the General Directorate of Education (OGPMCMEB, 2016, p. 1).

After the construction of the OGPMCMEB (2016), DGE implemented the Project 'Autonomy and Curricular Flexibility' of Basic and Secondary Education, in the school year of 2017 -2018, through Dispatch No. 5908/2017, of July 5th, covering public and private educational establishments that expressed interest in its implementation.

The project aimed to promote better learning, inducing the development of higher level skills, allowing the management of the curriculum in a flexible and contextualized way, recognizing that the effective exercise of autonomy is only fully guaranteed if the

object of this autonomy is the curriculum. In figure 5, an article about the project is presented.



Ministry of Education gives guidelines to make Mathematics program more flexible

After several complaints from teachers, schools received guidance to make the Basic and Secondary Mathematics programs more flexible

The Ministry of Education today gave guidance to schools to make mathematics programs and targets more flexible, which have been the target of criticism by teachers for their extension and alleged inadequacy to the students' age range.

Minister Tiago Brandão Rodrigues' office announced that he has just sent schools the guidelines for the management of subjects to be taught in both basic and secondary education, after work developed with the Association of Mathematics Teachers (APM) and the Portuguese Society of Mathematics. Mathematics (PSM).

Figure 5- Article on guidelines given to schools on Flexibility and Curricular Autonomy.

Source: Diário de Notícias (Portugal)

More recently, in 2018, the curricular documents called 'Essential Learning'(AE, 2018) in Mathematics, which, organized by year of schooling and prepared by APM and SPM, define the learning that all students must develop in Mathematics, ie the AE are the 'Common Curriculum Denominator' for all students, constituting a common reference base. Thus, the AE list the knowledge, skills and attitudes to be developed by all students, and were built from existing curriculum documents that remain in force. As of 2019, they become the benchmark for external evaluation, as published in the Diário da República, 1st series, n. 129, of July 6, 2018, Art.17:

> Essential Learning constitute basic curriculum guidance for the purposes of planning, carrying out and evaluating teaching and learning, in each year of schooling or training, curriculum component, subject area, discipline (PORTUGAL, 2018, p. 2934).

As shown in figure 6, below, the AE (2018) presents the following structure:

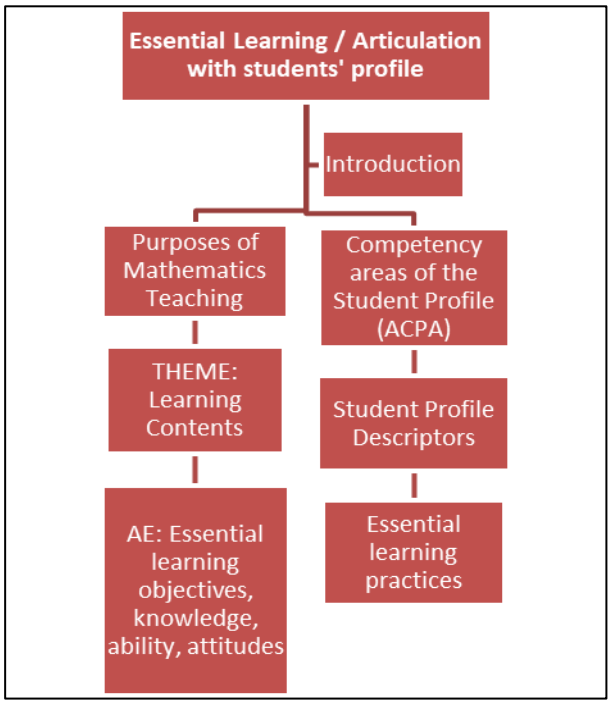


Figure 6- Structure of the document Essential Learning (AE, 2018) from Portugal. Source: The author, from the AE (2018)

The DGE reinforces that there is a problem with the extension of documents, unanimously recognized in Portugal, and sought to identify, discipline after discipline and year after year, the essential set of contents, capacities and attitudes, since there was neither revocation of documents in force nor the consequent adoption of new manuals.

In this sense, after the publication of the AE (2018), the Mathematics Teachers Association (APM) issued an opinion that signaling that 'they are not a program, but must be supported by programs capable of enhancing students' learning and supporting teachers in its didactic options and teaching practices, consistent with the profile of students leaving compulsory education recently disclosed' (APM, 2018, p. 1)

According to the DGE, the AE are the curricular guidance based on the planning, implementation and evaluation of teaching and learning, leading to the development

of skills registered in the Student Profile after leaving compulsory education (PA) (Portugal, 2017).

Figure 7 illustrates the concept of competence in document PA (2017), highlighting the interconnection of three dimensions.

Figure 7- Conceptual scheme of competences: Profile of students leaving compulsory schooling.

Source: PA (2017, p. 19)

The conceptual scheme was adapted in the document from the project 'The Future of Education and Skills: OECD Education 2030 Framework' and in it, competencies are complex combinations of knowledge, skills and attitudes, considered central to the profile of students.

The process of building the reforms reinforces the performance of an international agenda to empty the concept of area and skills that become items of external evaluation, reinforcing, under the logic of performance (Ball, 2010), that the curricula are increasingly prescriptive and subject to the principles of economics. The curriculum and the evaluation become mechanisms of political control, because the quality evaluation becomes, for Pacheco (2000, p. 13), 'the dominant discourse that serves so much to legitimize the State intervention in the process of regulation of the system , as to hold schools, teachers, students and parents responsible for the results obtained'.

The voices of the entities did not obtain significant impacts regarding their real purposes of revising or canceling the curricular guidelines, with the legitimacy of the developers prevailing through a vertically imposed ideology (Carvalho & Lourenço,

2018). Complex contexts of reforms demand resistance movements, aiming to oppose the imposed models of formation and teaching of Mathematics and relying on reflective practices aimed at professional autonomy and ethical commitment to the education of students (Passos & Nacarato, 2018).

In this sense, it is considered that the great challenge for teachers and researchers is to consider three dimensions as inseparable, regardless of context and temporality: research, production and teaching. The teacher needs to appropriate the contributions from the research to resist and, in this sense, the same:

> [...] have presented diversified productions, which express multiple discourses, which contribute to a rethinking of the teaching and learning process that can be resized by the results of research on Problem Solving, Mathematical Modeling, Ethnomathematics, History and Philosophy of Mathematical Education, Technologies in Mathematics Education... However, the contributions of these investigations are rarely incorporated into educational actions, as public policies and / or the determinations of educational institutions restrict the attitudes of the professionals who work in them. Many of the laws and guidelines determined by these private or governmental bodies reproduce guidelines arising from an educational system with outdated principles and which did not consider the current reality, do not respect the right of children and young people to learn in dialogue with the different socio-cultural context and political in which they were born and live (D'Ambrósio & Lopes, 2015, p. 11).

Curtailing the attitudes of Mathematics Education professionals also implies preventing the approximation with the investigations carried out in the area from reaching teachers and, consequently, in the vision about the construction of reforms, silencing their voices in pseudo democratic processes said to be 'modern and participatory'. Such complexities of this relationship generate impacts on teaching practices and, consequently, on the construction and implementation of the 'new curricula'.

SPIEM was excluded from the PMCMEB(2013) formulation and, even with the issuing of an opinion questioning the weaknesses and incongruities, their 'voice was silenced by the experts' (Carvalho; Lourenço, 2018) triggered by the government to be

responsible for the ‘vertical model imposed’ (Carvalho; Lourenço, 2018), where its public position was not considered for the revocation of the PMCMEB (2013).

What is evident, through the public pronouncement of the entity, is that the PMCMEB (2013) represents a setback in relation to the PMEB (2007) and there was an emptying of the area: list of contents, formal, with incomprehensible and disjointed definitions of what is essential for teaching mathematics in Portugal. In Macedo's perspective (2014), a program proposed as a ‘teaching management tool’ and focused on performances (Ball, 2010), disregarding the students' experiences, rhythms and contexts.

The AE (2018) are configured in an attempt to rescue the PMEB (2007), with an emphasis on mathematical literacy (focus of PISA) and interdisciplinarity. What became evident is that the PMEB (2007) contemplated advances in the area, and the PMCMEB (2013), value judgments not grounded by experiences, where mathematical understanding was placed in the background.

RESULTS

The analysis signals a global trend of curricular reforms that refer to education for adaptation, that is, a guideline, education for the market, thinking about producing evaluations; an ideology and a model of education engendered as a commodity with the prevalence of matrices of skills that the teacher must fulfill. Hence the concern with measures, indexes and results. Is the market logic applied to education (Seabra, 2015).

(1) Curriculum development process (degree of intervention)

SPIEM did not participate in the preparation of the PMCMEB (2013) and had a very critical position in the proposal, pointing out several errors and arguments in the context of research in Mathematics Education to publicly signal that the document was a

setback. Despite the contrary pronouncement, it did not culminate in an intervention in the program.

Those responsible for preparing the AE document (2018) were the SPM and APM, where the Portuguese government, through the MEC, assumed that a reformulation was possible without disregarding the PMCMEB (2013).

(2) Power lines of the new programs

PMCMEB (2013) have a priority emphasis on abstraction in continuous mathematical constructions through formal demonstrations. In this sense, mathematical abstraction constitutes the central line of the program, considered by the public letter released by SPIEM and APM, as disjointed from what is essential for children and young people. Although the PMCMEB remain in force, the AE (2018) is an attempt to resume the PMEB's assumptions (2007).

(3) Critical points of the new programs

The PMCMEB (2013) were pointed out as a curricular proposal of vast extension with an emphasis on mathematical rigor through abstraction.

The AE document (2018) was organized by years of schooling and the official no-cancellation of the PMCMEB (2013) by MEC culminates in a complex combination of two prescriptions, which can, as a consequence, generate problems of curricular flexibility in the different cycles.

Table 1: CONTEXTS OF CURRICULUM REFORM IN MATHEMATICS IN PORTUGAL.

CATEGORIES		
	PMCMEB	**AE**
INFLUENCE CONTEXTS		

	Influences of the North American, Asian, PISA and TIMSS curriculum.	
PRODUCTION CONTEXT	Tensions between the representations of mathematical educators and the society of pure mathematicians. APM and SPIEM requested revocation for reasons of extension and inappropriate content and SPM condemns the emphasis on practice, the applicable and the concentration and in favor of a sequential structure that would allow real applications in situations that emphasize mathematical abstraction.	Emphasis on planning, implementation, and evaluation, supposedly leading to the skills of the Student Profile after leaving compulsory schooling.
Curricular development processes - Degree of intervention	SPIEM did not participate in the elaboration and had an overly critical position, considering a setback in relation to the PMEB (2007) and its positions did not reflect in revocation or changes in the program.	They were built from existing documents and those responsible were APM and SPM.
Power lines	Mathematical abstraction as a central force line and emphases considered disjointed from what is configured as essential for students.	The AE document (2018) is an attempt to focus on students' needs in the 21st century.
Critical points	Appointed by APM and SPIEM as a document with a focus on abstract mathematical demonstrations, a focus defended by SPM.	The AE (2018) were organized by years of schooling and the non-cancellation of the PMCMEB (2013), culminates in a complex combination, which

		can generate problems of curricular flexibility in different cycles.

Source: The author.

Although in specific moments of curricular reforms, the study carried out through the contexts of influence and production of curricular guidelines in force in the country and the speeches of the entities involved in these processes, showed the degree of their intervention in the reform development process, the lines of force present in the prescriptions and the critical points that deserved attention in the most recent curricular reforms in Portugal.

The trends observed in the reforms revolved around issues such as: silencing SPIEM's voices; tensions between the positions of APM and SPIEM in relation to SPM; international agencies; and neo-technical and ultra-liberal perspectives with an emphasis on performativity and, consequently, on the rankings of external evaluations.

CONCLUSION

It became evident with the analysis of the Context of influence and Context of production, part of the Policy Cycle prepared by Ball (1994) and through the public speeches of SPIEM that the production of PMCMEB (2013) and AE (2018) in Portugal, configure based on approved prescriptions and seen as political texts resulting from tensions, disputes and agreements. (Mainardes, 2006, 2018).

New voices and nodes of interest gained notoriety in the process of reforming the mathematics curricula in Portugal represented in the political processes and contexts in the country (Ball, 2013). Voices represented by groups and organizations with visible influences and part of them with a tendency to comply with processes that are part of an international reform agency (Ball, 1994, 2013; Passos & Nacarato, 2018).

SPIEM took a stand on the setbacks in the PMCMEB's proposals (2013), which focus on content that can serve a management model (Macedo, 2014) and which primarily focus on performance (Ball, 2010, 2014). These prescriptions pointed out by the SPM as a solution to the problems of mathematics education in the country, but involved in turbulent processes, where the voices of the mathematical educators entity did not impact the architecture of the curricular proposal said to be supposedly democratic, but in the end it was configured as a vertically imposed model (Carvalho & Lourenço, 2018).

In the process of finalization, based on what was evidenced in the present investigation, the importance (even if there are other voices, configuring democratic debates) is highlighted of considering positions of entities historically linked by actions and research relevant to the improvement of the education and the democratization of access to mathematical knowledge in the country. Certainly, the questions do not end here and many will still be the tensions fought in the context of teacher training and practice and the results printed by the recent reforms of curricular guidelines in Portugal.

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AUTHORS' CONTRIBUTIONS

1st author: conceptualization; data curation; formal analysis; investigation; methodology; project administration; supervision; visualization; writing – original draft; writing – proofreading and editing.