Curriculum autonomy policies:

international trends, tensions and transformations

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INTERDISCIPLINARY CENTRE OF SOCIAL SCIENCES

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Collaboration between teachers' associations on the curriculum design of essential learning in Portugal

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ABSTRACT
The invitation extended in 2016 by the Portuguese Ministry of Education to the teachers' associations (TAs) to participate in the process of defining the Essential Learning (EL) was unprecedented. In this chapter, we intend to explore the dynamics of interaction between TAs in the same subject area and identify the activities performed and the outputs produced by the TAs during the process. The study's methodology consisted of a social network analysis, which allowed us to detect the structure of social relationships and interaction patterns and represent them graphically. We prepared a network analysis questionnaire applied to the eighteen TAs that participated in the elaboration of the EL. The application of focus groups confirmed the answers. For the graphical representation, we used Gephi 0.9.2. The results show that collaboration in the elaboration of the EL occurred mainly within the teams of the various associations, which shows that the teachers (that comprise the TAs) still have few habits of collaboration with each other, particularly regarding curricu lum design. While drafting the EL, TAs used a variety of curriculum reference documents produced in Portugal over the course of thirty years – this was also an inhibiting factor for collaboration. Looking at the activities developed by the TAs, it was clear that there was little discussion on pedagogical practices, the *theoretical literature* on the subject and on *curriculum/curriculum design*, as well as a scarcity of pedagogical products.

KEYWORDS
Collaboration, essential learning, curriculum autonomy policies, curriculum design, teachers' associations.

Introduction

The participation and engagement of teachers in processes that originate public policies in education have been increasingly appreciated to the extent that it became a trend in the 21st century. Regarding the implementation of processes of curriculum design, development and innovation, there are studies in the literature on teachers' involvement in curriculum development at the local level (meso- and micro-level – school and classroom), but not in its design at the national level (macro-level). There is also little research documenting teachers' involvement and participation in central and prescriptive curriculum design processes that analyse those processes.

This study explores the elaboration process of the more recent Portuguese national curriculum framework for primary and secondary education – entitled EL – and its main objectives are to understand the dynamics of interaction between teachers' associations in the same subject area during this process and to identify the activities performed and the outputs produced by the associations during the process.

For the preparation of the EL, the Portuguese Ministry of Education (ME) invited the various teachers' associations (TAs) to occasional extended meetings that converged into smaller working groups. The associations also met regularly in small subgroups with technical support teams from the Directorate-General for Education (DGE) of their respective areas. We do not wish to address here this process of supervised interaction. Instead, this study intends to investigate the dimension of the interactions between the teachers' associations of the same subject area (languages, sciences and technologies, artistic expressions, and social sciences)[1] that have occurred on their own initiative, beyond the scope of the initiatives sponsored by the ME to coordinate the production of the curriculum subject documents.

This study has only included the eighteen teachers'[2] associations that participated in the elaboration of the EL and did not consider scientific societies or syllabus authors, who were occasionally invited to participate in the process[3].

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[1] Languages: this area includes subjects such as Portuguese, English, Foreign Language II (German, Spanish, French), Portuguese as a Second Language, Latin A and B, Greek, Portuguese Literature, Classical Literature, Portuguese Language Literature; Artistic Expressions: Art Education, Physical Education, Visual Education, Musical Education, Drawing A, Descriptive Geometry, Arts Workshop; Sciences and Technologies: Mathematics, Environmental Studies, ICT, Natural Sciences, Technological Education, Materials and Technology, Computer Applications B, Multimedia Workshop B, Biology and Geology, Applied Mathematics for Social Sciences, Biology, Geology; Social Sciences: History and Geography of Portugal, History, Geography, Philosophy, History and Art Culture.

[2] Almost all the teachers' associations: ANPRI – Associação Nacional de Professores de Informática; ANPROPORT– Associação Nacional de Professores de Português; APECV – Associação de Professores de Expressão e Comunicação Visual; APEM – Associação Portuguesa de Educação Musical; APEVT – Associação Nacional de Professores de Educação Visual e Tecnológica; APF – Associação de Professores de Filosofia; APG – Associação de Professores de Geografia; APH – Associação de Professores de História; APLG – Associação de Professores de Latim e Grego; APM – Associação de Professores de Matemática; APP – Associação de Professores de Português; APPA – Associação Portuguesa de Professores de Alemão; APPBG – Associação Portuguesa de Professores de Biologia e Geologia; APPELE - Associação Portuguesa de Professores de Espanhol Língua Estrangeira; APPF - Associação Portuguesa de Professores de Francês; APPI - Associação Portuguesa de Professores de Inglês; APROGED – Associação de professores de Desenho e Geometria Descritiva; CNAPEF – Conselho Nacional das Associações e Profissionais de Educação Física.

On the one hand, the research problem of this study is trying to understand how the individual work rationale that underpins the teachers' work was overcome in this curriculum development process that was expected to be collaborative and for which teachers, represented by the TAs, had been invited. On the other hand, we intend to examine how the associations dealt with the situations of conflict raised by the coexistence of multiple curriculum reference documents in Portugal, which have become a fragmented set in the course of the three decades that have elapsed since the Roberto Carneiro Reform was implemented.

In order to focus on solving the problem, we formulated the following research questions: What patterns of social interaction have teachers' associations from similar subject areas (languages, sciences and technologies, artistic expressions, and social sciences) established with each other? What activities did they develop together? What curriculum references did they use? What outputs of these relational dynamics were produced during the production of the EL? How can these relational dynamics contribute to enriching teachers' curriculum practices?

1. Curriculum autonomy policies: the participation of teachers' associations in the construction of the EL

Within a framework aiming at redefining and building a common curriculum benchmark for the non-higher education system, the design of a set of curriculum reforms and changes started to take shape in Portugal in 2016 with the implementation of various educational measures. In this context, the *Students' Profile by the End of Compulsory Schooling* (Order No. 6478/2017) (SP) was approved in July 2017, defining the acquisition of a set of skills as a curriculum benchmark to be adopted by policymakers and educational agents and to be taken into account in the development of the EL. The vision of EL as recommended by the OECD in the *OECD Future of Education and Skills 2030* project was then recovered and implemented in the Portuguese context, thus creating the conditions for a common set of learning content to be achieved by every student – *Essential Learning* – even in the face of the complexity of contexts, with the further possibility of consolidating, deepening and enriching that body of knowledge at the local level, enabling different pedagogical approaches.

The EL constitute 'the common knowledge to be acquired, i.e., the contents of subject-structured knowledge, indispensable, conceptually organised, relevant and significant, as well as skills and attitudes that must be developed by every student in each subject area or subject, generally referring to the year of studies or training' (Order No. 5908/2017, Article 2(b)). These are curriculum guidance documents for the planning, implementation and assessment of teaching

[3] The ME invited the authors of the respective syllabuses to prepare the EL for the subjects of Economics A and C, Law and Sociology, because the Associação de Professores de Ciências Económico-Sociais (APROCES) was not constituted at the time of that invitation: its president took up office on 15 September 2017. For the secondary school subjects: Moral and Religious Education, Physics, Physics and Chemistry A, Chemistry, Mandarin and Materials and Technologies, the ME technical teams drafted the respective EL. The scientific associations of Physics, Chemistry (there is no professional association) and Philosophy were also invited to write the EL; the latter integrated the team of the Associação de Professores de Filosofia, at the association's request.

and learning and aim at fostering the development of skills in the areas included in the SP. The approval of these documents did not immediately imply the revocation of the other curriculum documents in effect.

At the end of the 2015-2016 school year, in order to collect teachers' perceptions of the existing curriculum framework, as well as its limitations and implications, a national survey of teachers was conducted. Survey results have shown that teachers clearly consider the curriculum too long, obstructing the development of diversified pedagogical approaches, and too prescriptive regarding the content to be acquired by students (hindering the inclusion of every student). As a result, in April of that same year, the conference *Curriculum for the 21st century: competencies, knowledge and values in a 12-year education system*[4] took place, offering the points of view of teachers' associations as well as national and international experts.

The process of drafting the EL began in October 2016 with the invitation extended to eighteen teachers' associations, two scientific societies (Physics and Chemistry) and some authors of syllabuses of those subjects for which there was no corresponding association. This invitation had the clear intention of involving the representatives of teachers in the construction of a curriculum that should be appropriated by them, taking into account the existing documents and what was known about practices and schools. To support the elaboration of the EL, technical teams of the ME were assigned to each subject, essentially composed of basic and secondary school teachers. At the same time, the Ministry promoted meetings for interdisciplinary work, discussion, and reflection on the existing curriculum policy.

The purpose of reducing curricular overload, metioned in many recommendations and studies, particularly those of the OECD, along with the rationalisation around what is essential to be acquired, paved the way to the ME's initial practical recommendations for the operationalisation of the EL, e.g., the suggestion to try to write the EL of each subject on a single sheet of paper, which clearly was not to be taken literally but rather to promote economy and curriculum essentiality as opposed to the excessive size of the syllabuses (or curriculum documents in place). Throughout the process, this strict limit was abandoned.

In May 2017, given the emerging difficulties and the different understandings of the various teams, the ME hired three curriculum experts to produce a theoretical framework document with guidelines on the curriculum model implicit in the ME's proposal, including a *template* to support the writing of the EL (Roldão, Peralta & Martins, 2017), as well as to support the working groups in designing the curriculum – which was intended to be developed in a coherent way avoiding a segmented vision. This *template* suggested that the introduction of the EL included the brief definition of a subject-specific rationale (identification of the organizing ideas and core concepts of each discipline by year/cycle) and the explicitness of the curriculum justification, especially the contributions of the subject to the achievement of the SP. In the template provided, some key points guiding the development of the EL were defined and organised into four columns/

[4] For information on the conference, please check: http://www.dge.mec.pt/conferencia-curriculo-para-o-seculo-xxi-competencias-conhecimentos-e-valores-numa-escolaridade-de-12

categories: (a) identification of the purposes and contribution of each subject/area to the construction of the EL; (b) identification of the thematic areas/subject/grade/cycle and respective EL – integrating targeted knowledge, skills and attitudes (vertically and horizontally), combined in line with the EL; (c) elaboration of recommendations regarding cognitive operations that students should master on the different contents; and (d) elaboration of guidelines on strategic teaching actions appropriate to the stated purposes in terms of the promotion of EL (Figure 1).

Figure 1. Template to operationalise the Essential Learning.

IMPLEMENTATION OF **ESSENTIAL LEARNING**

Organiser Topic	EL: Knowledge, Skills and Attitudes The student should be able to:	Strategic teaching actiongeared towards the profile of students (Examples of actions that should be carried out in the subject)	Descriptors of the profile of students

Source: Adapted from Roldão, Peralta and Martins (2017).

Thus, a reference base was established to combine the EL with the SP (Roldão, Peralta & Martins, 2017), which was expected to be challenged and enriched with the work of the schools that were voluntarily involved in this transformative process for the 2017-18 school year. In the first stage, the EL were written down in the form of working documents for the first years of each cycle/level of studies and were sent to the 234 schools that participated in the Autonomy and Curriculum Flexibility Project in August 2017. The aim was to test and improve the EL with the work developed by schools by starting to implement them and enabling the working groups responsible for their elaboration to understand how the documents were being read and appropriated by teachers. This methodology proved essential for the consolidation of the final documents that included every school year.

After public consultation, the drafting of the EL for every year of Basic Education (Order No. 6944-A/2018 of 19 July) and the Scientific-Humanistic Courses of Secondary Education (Order No. 8476-A/2018 of 31 August) was completed in 2018.

2. Teacher involvement in curriculum design at the macro-level: inter-teacher collaboration and inter-teachers' association collaboration, and production of curriculum documents

2.1. Inter-teacher collaboration

In the literature, teachers' involvement in processes leading to the formulation of educational policies is considered a decisive factor in the implementation of such policies since it contributes to the improvement of these processes by incorporating teacher expertise. Several authors agree that teachers' involvement in the implementation of processes of curriculum design, development and innovation has a considerable impact on these processes (Oliva, 2005) and is actually essential for the success of educational reform efforts (Fullan, 2001) – given that the

curriculum has to be implemented by teachers, its design clearly benefits from their classroom experiences (Marsh & Willis, 1995) and perspectives (Doll, 1996). Carl (2009) noted that teachers should not be mere implementers of the curriculum. Teachers' active participation in the curriculum development process, both at central and local level, positively influences its successful implementation (Young, 1989; Baş & Şentürk, 2019; Drew, Priestley & Michael, 2016; Priestley, Crick & Hizli Alkan, 2019; Priestley, Alvunger, Philippou & Soini, 2021; Alvunger, Soini, Philippou & Priestley, 2021).

In the transition from an individual work rationale to a collegial and representative one, balance and complementarity are sought between the development at the individual and collective levels, actors and organisation (Scheerens, 2010), in a perspective of professional development bidirectionally interrelated with organisational development (Almeida, 2012). Teachers' participation and involvement in professional development processes, including curriculum design and development processes, has been more valued and became a clear trend at the beginning of the 21st century.

There are different practices of teacher participation in curriculum design and development worldwide, both individually and collaboratively, from curriculum design to the production of curriculum materials (e.g., USA, Australia, Finland, China, Netherlands, Nepal, Tanzania). This is the case in Nordic countries that have a tradition of fostering shared curriculum development work, including schools and teachers. Moreover, in Finland, for example, even local authorities have been involved. However, there is little research documenting this involvement and participation of teachers in the design of the prescriptive curriculum, and there are no studies on the analysis of these processes either. Studies on teachers' involvement in curriculum development at the local level (meso- and micro-level – school and classroom) are identified in the literature but not in its design at the national level (macro-level).

Although support for the participation of teachers in curriculum development process has been increasing (e.g., Carl, 2005; Doll, 1995; Oliva, 2005; Ornstein & Hunkins, 2009; Voogt, Pieters, & Handelzalts, 2016; Young, 1990), the research literature in this field reports that teachers face several problems when called into the curriculum design process (e.g., Carl, 2005; Handelzalts, 2009; Hoogveld, 2003; Oloruntegbe et al., 2010;), which are mainly due to the gap in knowledge and skills needed to implement collaborative design processes. Specialised curriculum knowledge is one of the types of teachers' professional knowledge identified by several authors within the study of professional knowledge and competencies for teaching (Bernstein, 1971; Elbaz, 1991; Perrenoud, 2000; Shulman, 1987; Tardif, 2002). However, this type of knowledge is scarce, as observed in the difficulties experienced in this type of work (which is a critical aspect in teachers' professionalism and teacher education (Priestley & Drew, 2019; Handelzalts, 2009), namely in Portugal (Almeida & Viana, in press), which is mainly geared towards compliance with a pre-established curriculum.

Collaborative design positively influences professional development and the implementation of curriculum change (Drake, Land & Tyminski, 2014; Simmie, 2007; Voogt et al., 2011) because teachers develop skills and take ownership of change (Voogt & Handelzalts, 2016). Therefore, it is important to analyse how teachers' involvement in curriculum design at the macro-level through their professional associations has been characterised in Portugal.

2.2. Individual teachers' work rationale in the Portuguese education system and subject-based associations

Teachers' associations, that accepted the invitation to participate in the construction of the EL, were confronted with another type of challenge while participating in the resulting curriculum design process: the tension between the founding principles of the curriculum model underlying the EL – a model guided by the principle of unity of the curriculum, of the transversal skills to be developed throughout compulsory education required by the EL – and the subject-based organisation underlying the very designation and composition of TAs in Portugal. This understandably caused some tension among the producers of the EL. Despite this contradiction, at least apparent, between a holistic and transversal curriculum perspective and a tradition of subject-based individualism, we would expect some interaction between the various subjects in the curriculum design process mediated by the TAs. The network methodology we have employed in this study attempts to analyse this interaction

Teachers were one of the first professional groups to organise themselves into associations[5] in Portugal. Unlike teachers' associations in other countries (organised by level of education, course type or even gender[6]), a subject-based rationale marked the constitution of teachers' associations in Portugal. The expansion of the TAs has been based on the overvaluation of knowledge in the specific scientific area – favouring specialised knowledge over other areas of knowledge – which resulted in a tradition of autonomous functioning of each association, interested above all in the promotion of its subject among its members, and also in the recognition of work and curriculum conditions by the ME, particularly visible in the struggle for the workload of the respective subject and for the relative importance in the students' transition/retention policies. The associative work is developed individually, with little openness to collaborative initiatives, with the exception of some specific initiatives, such as the creation of the Secretariado Inter Associações de Professores (SIAP) in 1992, which organised some meetings and produced a number of publications (Niza, 2009; Abrantes, 1994) and the Federação Nacional de Associações de Professores de Línguas Vivas (FNAPLV)[7], founded in 1989. However, it was not the collective desire but the individual interest that sometimes translated into a conflict between several subjects and their associative representatives, especially in issues related to the curriculum system and assessment policies.

This subject-by-subject approach was in line with the tradition of the Portuguese education system prior to 1974 that was based on the individual work of each teacher, on the assumption that the scientific education of each teacher made him/her responsible for teaching their respective subject, which influenced the creation of teachers' associations. This was the prevailing *modus operandi* and strengthened the vision of the curriculum in place at the time as the sum of a set

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[5] (Boto, 2018, p. 17).

[6] In England, for example, there are associations for primary school teachers, two associations for secondary school teachers, one for male teachers, the other for female teachers; there is also an association for technical schoolteachers, etc.

[7] The National Federation of Modern Language Teachers' Associations is made up of: Portuguese Teachers' Association (APP), Portuguese Association of Spanish Teachers (APPELE), Portuguese Association of German Teachers (APPA), Portuguese Association of French Teachers (APPF), Portuguese Association of English Teachers (APPI).

of segmented subjects, each associated with a teaching knowledge focused on the scientific domain of that area of knowledge. Additionally, in the organisation of the teaching work, individual action was predominant, collegiality was rare, and teaching meetings were not compulsory – and, when they did take place, they were mainly intended to discuss grades at the end of the term or school year or to deal with bureaucratic aspects.

It was under the guidance of the Veiga Simão Ministry (1970-1974), following the expansion of compulsory education to six years in 1964[8] and the creation of Preparatory Cycle (1967[9]) that, at the same time as the Reform that was associated with his name was being prepared and launched (1973)[10], the obligation to hold collegial meetings of teachers – class council and subject council meetings on a monthly basis – with a pedagogical and scientific scope was consolidated for the then Preparatory Cycle of Secondary Education (CPES - current 5th and 6th years of schooling), as prescribed in the *Teaching Profession Career Statutes of CPES* (1968, articles 14 and 17)[11]. The positions of Class Director and Subject Delegate were also created, instituting for the first time intermediary leadership in the school organisation. In secondary education – which at the time started in the current 7th year[12] – this practice was only introduced later, following the gradual expansion of compulsory education to the following cycles of studies.

The transformations of the Portuguese education system after the 25th of April Revolution with repercussions on the curriculum plan highlighted the importance of a collegial and representative work rationale in schools, giving visibility to collective teacher movements, both on an associative and a union level, with the consequent creation of the first teachers' associations after 1974.

Although teachers' associations have developed mainly from the second half of the 19th century onwards, with the creation of the first teachers' association dating back to 1854 (Pintassilgo, 2013), this trend intensified and became more visible in the 1980s when many of the current teachers' associations were created[13]. By reading their statutes[14] or looking at their mission statement or

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8 Decree-Law No. 45810 of 9 July 1964. It establishes 6 years of compulsory education.

9 By Decree-Law No. 47480 of 2 January 1967 – as part of a process aimed at bringing the two branches of secondary education increasingly closer – the 1st cycle of secondary education and the preparatory cycle of technical education were unified into a single general cycle, giving rise to the preparatory cycle of secondary education (or simply 'preparatory cycle').

10 Law No. 5/1973 of 25 July – Veiga Simão Reform.

11 The Statute of the Preparatory Cycle of Secondary Education was approved in 1968 pursuant to Decree No. 48572 of 9 September.

12 Although the reform provided for a 4-year preparatory cycle (up to the current 8th grade), of which the 3rd and 4th grades were in trial between 1972-73 and 1974-75, these were not implemented because the reform was interrupted with the transformations of the 25th of April Revolution.

13 In February 1980, the Portuguese Association of Portuguese Teachers (APP); in June of the same year, the Portuguese Association of German Teachers (APPA); in June 1981, the Association of History Teachers (APH); in 1986, the Portuguese Association of French Teachers (APPF); in 1987, the Associations of Teachers of Mathematics (APM), English (APPI), Geography (APG), Philosophy (APF) and Biology and Geology (APPBG); in 1988, the Association of Teachers of Economic and Social Sciences and the Association of Teachers of Latin and Greek and, in 1989, the National Council of Associations of Physical Education Professionals and the Association of Teachers of Visual Expression and Communication. Others were created in the 1990s and subsequent years. We refer here to the dates of legal constitution of the associations mentioned above, even though some of them carried out associative activities before that date.

14 Some teachers' associations have their statutes are available online, e.g., APECV (https://www.apecv.pt/estatutos), APP (https://www.app.pt/sobre-a-app/estatutos/), APH (https://aph.pt/quem-somos/estatutos/), APPBG (http://www.appbg.pt/quem-somos/estatutos), APPELLE (https://appele.pt/estatutos-2/).

their purposes, we can see that the activities of the teachers' associations focus particularly on the subject they represent and mostly on the dissemination/promotion of that subject, teacher education, sharing and collaboration between teachers through congresses, conferences and seminars, the establishment of partnerships and relationships with institutions, namely with the Ministry of Education, particularly in relation to curriculum and assessment issues, and, more rarely, research activities or production of teaching materials. This individual subject-based encapsulation has emerged from a teacher professional culture based on a tradition of individual work and whose dimensions of joint work have been introduced over time associated with prescriptions that have gradually mitigated the traditional individualism, albeit without eliminating the core notion of a teacher's professional identity as an autonomous individual responsible for teaching based on the possession of a specialised body of knowledge in a specific subject to the detriment of pedagogical knowledge and the knowledge of educational sciences.

The social representation of teachers' professional knowledge – with the integration of its components of content knowledge, pedagogical-didactic content knowledge, knowledge of the curriculum, knowledge of the students, and knowledge of the context, as theorised by Lee Shulman (1987)[15], and the lines of analysis of Donald Schön (1983) that envisioned the construction of the professionals' knowledge as a reflection on their practice – was still almost alien to the vision of the 1980s in the Portuguese system, which mostly corresponded to the almost exclusive appreciation of the content or scientific knowledge of the teachers, although the teachers' associations included in their founding texts didactic and sometimes pedagogical objectives. However, their action programmes privileged the scientific dimensions of the specific subject knowledge in most cases.

It was at the level of the education and practices of primary school teachers (current 1st cycle of Basic Education) that pedagogical knowledge and its didactic dimensions (Shulman, 1987) were more appreciated in the social representation of these teachers, possibly because of their association with the age and development of their pupils to the detriment of the appreciation of scientific knowledge. Thus, a duality was maintained in the representation of teaching knowledge in these two specific professional subgroups: unlike the 1st cycle, teaching at the subsequent levels until the end of Secondary Education implied training practices that focused primarily on scientific content knowledge and only very secondarily on some pedagogical content knowledge. However, the representational status places scientific knowledge on a higher plane, referring the main significance of pedagogical knowledge to the initial levels where the learners are young children. This duality, sometimes referred to as *the metaphor of the double funnel* (Roldão, 2004), established and reinforced a difference in terms of the recognition granted to these two subgroups of teachers, generating a cultural divide reflected in the TAs to the extent that a large majority of the associations, based on the specificity of given subject knowledge, did not include primary school teachers at the time.

Relating the process of constitution of the associations with the above-mentioned representational rationale of teachers' knowledge, we can see that it highlighted the divide in the representation of these two subgroups of teachers with regard to the value of the knowledge

[15] To which, more recently, Mishra and Koehler (2006) have added technological pedagogical content knowledge (TPACK).

associated with them: the value of *pedagogical knowledge* as central for generalist teachers at a basic level compared to the supremacy of *content knowledge* associated with teachers of subjects at subsequent levels. It is thus understandable that a large majority of teachers' associations initially limited themselves to the 2nd and 3rd cycles of basic education and secondary education, adopting the terminology coined by the Basic Law of 1986. Mathematics and Physical Education were pioneers in including 1st cycle teachers. The successive changes in the design of the distribution of curriculum areas also influenced the contours and geographies of the associative movement.

In Portugal, the acknowledgement of the teachers' associations as valid interlocutors in the curriculum reforms was first formally possible in the process of the 1989-1990 Curriculum Reform (Roberto Carneiro Reform) in the preparation and implementation of the new syllabuses, both as consultants and responding to specific requests made by the Ministry, or even with the integration of individual members of the associations in teams of syllabus authors.

The same way of associating these organisations to the design of curriculum proposals was maintained in the launching of the Flexible Curriculum Management (1996-2001). At the time, these organisations were similarly associated with the design of curriculum proposals, playing an even more important role. Representatives of the teachers' associations integrated, along with university experts and ministry officials, an Advisory Board that accompanied the production of a document entitled *National Curriculum for Basic Education* in 2001, and the teams of authors of each subject formally included some elements designated by the TAs. The different versions that supported the curriculum design established in 2001 (Decree-law No. 18/1/2001) resulted from many negotiations and some confrontations with the teachers' associations that had greater representativeness by then. Many of these interactions were characterised by a much more noticeable defence of the TAs' views on labour conditions than on their scientific and pedagogical views, namely regarding some resistance in face of the flexibilization of the management of the number of hours per subject.

In 2017, however, the invitation extended by the Portuguese Ministry of Education handed the teachers' associations a measure of power over the formal curriculum unusual not only in the Portuguese curriculum historical context but in most countries, requesting their full and institutionalised participation in the process of defining the EL, with the ME assuming only a relative control over the development of this process regarding the definition and construction of the EL and allowing TAs such a curriculum autonomy as there was no memory in the history of national education policy.

It is therefore important and innovative to study how teachers' associations responded to this invitation and the forms that their participation took, as well as to understand the influence this collegial rationale had over an individualistic professional teaching culture and how this change marked the design of a curriculum aligned by the transversality of the competencies that determine the education path of young Portuguese people.

As mentioned above, the collaboration between associations was not made any easier by the diversity of curriculum documents that had been produced cumulatively over thirty years.

Therefore, a social and historical analysis was undertaken to understand the context of the curriculum references with which the associations were faced.

2.3. Brief history of curriculum frameworks in Portugal

When analysing the reference curriculum documents, which we refer to as references, we should relate the typology of these references to the evolution of the nature and structure of the educational system in its curriculum expression, which evolved from the second half of the 20th century around two main ruptures: consideration of content and methodologies – moving from the prevalence of a strictly scientific and theoretical rationale of the curriculum to the association of a pedagogical-didactic perspective that conveys the knowledge to be acquired through learning; massification and expansion of schooling – moving from uniform curriculum systems for a restricted public to a double decision rationale, both national and local, to face the diversity resulting from the universalisation and expansion of education to the whole population.

2.3.1. Contents and methodologies

Bearing in mind the first rupture, we can distinguish two macro-periods in this evolution. Considering the life of school as an institution, in the period that ran from the mid-19th century to post-war mass education, the reference documents employed in the curriculum practice tended to be unified and markedly prescriptive, limited to the normative assertion of the content to be addressed, thus configuring the classical definition of syllabus. These documents are list-syllabuses, where little or no reference is made to justifications or guidelines for teaching at a time when the expository method of teaching was practically unchallenged, and the pedagogical education of the teachers themselves was practically inexistent or minimalist[16]. Even in the syllabuses for cycles of studies in which some changes started to be introduced in the 1960s-1970s, such as the Preparatory Cycle of Secondary Education (CPES, 1967), this was still the predominant format of a single curriculum reference document for each subject – a syllabus that included the contents (i.e., the topics) that had to be summarised and *accomplished*. This rationale naturally assumed the homogeneity of the students – it was targeted at an average student. In the time span that encompassed this macro-period, in which illiteracy was still very high (close to 30 per cent)[17], the pupils who had access/ascended to levels of education above what was then primary education were relatively few and very socially selected – which meant that no consideration was given to pedagogical and curriculum diversity of sequence, depth or different types of approach to the contents listed in the syllabuses.

[16] The present text refers to the current 2nd and 3rd cycles of Basic Education and Secondary Education that constitute the predominant scope of the teachers' associations involved, referring to the reference matrix inherited from Secondary Education. The education of these teachers at the time was predominantly at the undergraduate level in scientific areas, although there were exceptions in cases of pedagogical experiences and for the small number of teachers who accessed the internships that led to tenure until the expansion of the 1960-1970s. The degree in Pedagogical Sciences taught in the Faculties of Arts and Humanities of the Universities of Lisbon and Coimbra had existed since 1930 and continued after the 1957 reform, but it only became a compulsory requirement for access to the internship in 1970. Decree-law No. 358/70 of 29 July, *Official Gazette* No.175.

[17] In 1960, illiteracy numbers stood at 26.6 per cent of the population over 10 year of age, 39 per cent in the female population; in 1970, the rate dropped to 25.7 per cent, 19.7 per cent in the male population and 31 per cent in the female. (Source: Pordata)

From the 1960-1970s onwards, through the influence of other countries and international bodies and in view of some openness of the Estado Novo regime during the government of Marcello Caetano, some emerging receptivity to slightly different curriculum formats was seen, along with the requirement for some pedagogical education for effective positions at these teaching levels[18], namely the Degree on Pedagogical Sciences after the scientific degrees. In the 1970s, and following the post-graduate education of groups of teachers in foreign universities, namely Anglo-Saxon ones, often encouraged or financed by the Ministry of Education and Higher Education, the first university Departments of Education were created in Portugal. In these, as is the case of the Faculty of Sciences of the University of Lisbon, programs were created with a dual output for the first time – scientific and teaching, after a common core in a particular area or science. This movement towards appreciating pedagogical education also took shape in the new universities – Aveiro, Minho, Évora – which inaugurated models of teacher education shaped by an educational vision and not only scientific and subject-related (Nóvoa, 2008; Roldão, 2014).

The second period of this time span, which continues until today, was therefore marked by the coexistence in the curriculum reference documents of content concerns combined with methodological and pedagogical-didactic guidelines, which have been, as a rule, increasingly incorporated in the introduction and in specific parts of the documents that, however, continue to be called syllabuses. The nomenclature has dragged and reinforced the fixation of the prescriptive model, without generating new areas or levels of curriculum decision and tending to perpetuate the so-called *cover it syndrome*, i.e., the centrality of the notion of *compliance with the syllabuses* (every topic), and included in a training culture that did not even use the concepts of curriculum or curriculum development, later incorporated largely through the influence of people with a Master or a Doctorate degree from Anglo Saxon universities (Felgueiras, 2008; Roldão, 2014).

2.3.2. Massification and expansion of schooling

The second rupture, parallel in time to the second stage of the previous description, which generated curriculum transformations at the decision level, was the shock in the system when faced with the gradual expansion of compulsory schooling and the consequent diversity in terms of learners, from the establishment of the six years of compulsory education[19] – which later, after the Roberto Carneiro Reform (ME, 1989-1990), became nine, and more recently (2012), was extended to the 12th grade. Each increase implied a new variety of types and levels of retention, directly associated with the social, economic, and cultural diversity of the students in the face of an unchanged school system that perpetuated the single curriculum prescription clearly more distant from the cultural standards of the students that came from more disadvantaged populations.

[18] Some pedagogical-didactic dimension expressed in the texts existed in the syllabuses for what was then primary education, insofar as it tended to be universal and exercised by generalist teachers aimed at children at an early stage of their access to formal knowledge..

[19] The compulsory education of 6 years had been established in 1964 (Cf. note 5.) The Veiga Simão Reform foresaw the expansion to 8 years of compulsory education, of which the so-called 3rd and 4th grades were experimental steps. The continuity was interrupted by the 25th April 1974 Revolution and the 6 years of compulsory education were maintained until the 1989-1990 Reform.

This phenomenon was experienced by several Western countries, although with slightly different timings, and generated a set of policies that established and recommend that two levels of curriculum decision exist – the *central/national* level, called National Curriculum, particularly in Anglo-Saxon and Nordic countries with a localist tradition and associated with the guaranteed learning of a *common core curriculum* necessary for all, and the *local or institutional* level that left room for decision and adaptation of the curriculum to the contexts at the hands of schools and teachers. This trend, which Roldão (2000) calls the *curriculum binomial*, is seen in all the Portuguese curriculum policies since the 1990s, associated with terms such as *flexibility* and *autonomy*, reflecting an issue that seems unavoidable in a universal education system: the harmonisation of a core curriculum shared by every student, and varied fields of knowledge and learning modes, related to the contexts and cultures of the different contextual situations of schools and students.

In this framework, the concept of *competence* assumes a renewed relevance and a new meaning in international policy and curriculum guidance documents, particularly in those that have been produced by the different education systems since the 1990s, insofar as it allows focusing curriculum acquisitions on a core set of competencies – knowledge-in-use or knowledge-in-action (Perrenoud, 1999; Zakhartchouk & Hatem, 2009) – whose achievement results from the convergence of the different subjects and areas of the curriculum pathways, both transversally and in the subject knowledge itself. It corresponds to a recognition of the uselessness/impossibility of common encyclopaedic curricula in favour of a judicious selection of what is truly essential and the differentiation of the curriculum according to the various situations and contexts. The *National Curricula* (1st versions) of the United Kingdom (Department for Education, Government UK, 1988) and Nordic countries in the 1990s (Ministry of Education and Research, 1994; FNBE, Ministry of Education, 1994)[20], and the Socle de Compétences (2004) developed in the French system at the same time, whose most recent version came into force in 2016, have originated from this matrix. The *National Curriculum for Basic Education – Essential Competencies* established in Portugal (2001) also stemmed from this curriculum movement[21].

2.3.3. The multiplicity and asynchrony of curriculum reference documents in Portugal – a particular case of a difficult reform

The effort made to achieve two harmonised levels of curriculum decision-making has not been easy to implement in countries with very centralist curriculum traditions, especially in Southern Europe, where professional cultures are rooted in generations of teachers who are strongly influenced by the need to 'comply with the syllabus' as opposed to *guaranteed learning*, a terminology more associated with curriculum theory (Tanner & Tanner, 1980).

[20] The National Core Curriculum for Basic Education was renewed in 1985, 1994, 2004, and 2014 – Finish National Board of Education, FNBE, 2016.

[21] England's National Curriculum was introduced by the Education Reform Act of 1988. Similarly to those of Finland and Norway, it has been updated to the more recent versions that are currently in place or are going to be implemented soon, as in the case of Norway. These countries also provide several support documents for schools, teachers, and homeschooling. https://www.gov.uk/government/collections/national-curriculum.

Such persistence of very uniform curriculum prescriptions has contributed to the maintenance or worsening of retention levels, which has generated, in turn, numerous support programmes to promote success since the 1980s – e.g., the TEIP Programme[22] started in 1996 and is still in effect in schools designated as priority intervention schools.

Thus, in the Portuguese case, both the construction and the application of the curriculum reference documents aimed at fostering competencies have not been easy to implement and were quickly transformed in the school context into 'syllabuses' under a different name. The same holds true in the opposite end of the curriculum binomial – e.g., school and class *curriculum projects* (Decree-law No. 6/2001 of 18 January) were clearly aimed at providing schools with some autonomous curriculum decision power, but most schools did not comply with this request: schools and teachers alike, long used to having little autonomy, saw this demand in a prescriptive sense once again (Roldão & Almeida, 2018).

Considering curriculum reference documents, the Portuguese situation is thus understandably complex. The product of a system based on monolithic and uniform references until the 1960s and 1970s, the system modified curriculum documents towards their modernisation from 1974 onwards and started by giving rise to new varied syllabuses, investing in their innovative character and adaptation to each subject. These syllabuses were successively created over the years until the 1989-1990 Curriculum Reform[23] systemised and harmonised these documents, creating a coherent structure for all curriculum documents – still called syllabuses, but designed following common curriculum purposes – integrating processes and attitudes with a transversal structure knowledge, and also creating a curriculum autonomy area for schools to adjust to local contexts, the so-called 'School Area'[24]. However, it maintained the rationale of unity of the core curriculum prescription, which would start to be questioned with the progressive expansion of education for all and the growing difficulties in responding to more and more students from different backgrounds and cultures.

Thus, after this last moment of coherent reformist unity – the 1989-1990 Reform – the following decade was characterised by (i) the attempt to introduce and reinforce two levels of curriculum decision, expressed in the *National Curriculum (2001)*[25] centred on essential competencies, and the 'mandatory' opening to school curriculum projects geared towards school autonomy (Decree-law No. 6/2001) and, on the other hand, (ii) the obvious difficulty of schools and teachers to adapt to this new rationale, the production of curriculum guidelines that would hopefully

[22] TEIP- Territórios Educativos de Intervenção Prioritária [educational territories for priority intervention], a positive discrimination programme initiated in the 1990s and currently on its fourth stage. Order 147-B/ME/96 of 1 August.

[23] Decree-Law No. 286/89 of 29 August. Implementation of the Roberto Carneiro Curriculum Reform.

[24] The 'School Area' was a space for interdisciplinary work, managed by form teachers in order to work together on intervention or study projects. It generated great resistance among teachers due to the absence of specific guidelines, although many schools developed interesting projects. A lot of research on this dimension can be found in the archives of the Institute for Educational Innovation (IIE) now integrated in the Directorate General for Education.

[25] The designation 'National Curriculum' is inappropriate for countries with centralist administrations, such as Portugal, where the curricula were always only national, which has made its appropriation by the educational actors difficult. It was, however, adopted to harmonise with the common designation of the other European countries. This document, whose revision was expected in three years, was revoked in 2012 – while the National Curricula of other countries were being revised and remain in place.

clarify for teachers the understanding of the meaning of EL to achieve as a *common core*, which was embodied in two documents, from different dates and with different guidelines, which we briefly characterise below – *Learning Outcomes* (2010) and *Curriculum Outcomes* (2012).

Nevertheless, some of the 1989-1990 syllabuses have remained in place, but in several subject areas, there were initiatives to change the syllabuses by subject, usually shared with the respective associations, as was the case of Portuguese and Mathematics, among others. In other cases, there were only partial adjustments to the initial syllabus, still inspired by the 2001 version of the National Curriculum. At the same time, in the 1st cycle of studies (Primary), for example, the Environmental Studies syllabus is still based on the 1989-1990 curriculum, while Portuguese and Mathematics syllabuses have been changed more than once in the last thirty years. These diachronic changes have moved away from the unifying idea of the curriculum that had been one of the great gains of the overall curriculum corpus produced in the 1989-1990 Reform, and thus there has been no combined reform of the curriculum as a whole – an operation that would be gargantuan, although perhaps necessary, but made difficult by the need to comply with the new double decision requirement: articulating the common national standards with the local standards, different in each context, and corresponding in a more up-to-date fashion to the influences of international syllabuses, namely those of the EC and the OECD, in which Portugal played an active role[26].

Thus, the situation of the reference curriculum documents in Portugal has become a mosaic that has lost its unity in the three decades since the Roberto Carneiro Reform, although it has certainly gained improvements in several subjects individually.

The attempts at curriculum reorganisation materialised in 1999-2001 in the already mentioned flexibility policy associated with the National Curriculum of 2001 and the school curriculum projects pursuant to Decree-Law No. 6/2001. The attempt to find more support in teachers and schools to such curriculum practices clarifying what is really essential to learn has led, in different political moments, to the production of new reference documents referred to as *Goals*: the first ones were entitled *Metas de aprendizagem (Learning Outcomes)*[27] and were produced in 2009-2010; but in 2012-2013, following changes in the political direction of the ME that also revoked the National Curriculum, a set of documents entitled *Metas curriculares (Curriculum Outcomes)* were written. The publication of the latter corresponded to the elimination of the previous ones, concluded and handed to the new government by the team[28] in charge of designing them in 2011. Although the Learning Outcomes had not been homologated yet, they had already been subject to validation by schools in a pilot study on the ground and adjusted as a result of the data collected in that study.

The new documents, while useful, compounded the increasing lack of clarity of prescription perceived by teachers. None of them replaced or revoked syllabuses, they were supporting documents, but in practice, they became a veritable new prescriptive 'curriculum' benchmark.

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[26] OECD-CERI: International project *The Curriculum Redefined– Teachers and Curriculum Reform in Basic Schooling*, 1994; International project *Schooling for Tomorrow 1995-1996*.

Corresponding to two very different visions, we will briefly summarise their differences (Table 1) to clarify the next stage that corresponds to the current situation at the time we are writing this text.

Table 1. Comparative structure of Learning Outcomes and Curriculum Outcomes.

	LEARNING OUTCOMES 2009-2010 (not published officially by the ME)	CURRICULUM OUTCOMES 2012-2013 (published by the ME)
DESIGN	A supervising team that integrated members from every area and subject was set up and coordinated the work in order to guarantee the harmonisation of the transversal curriculum dimensions. This team had autonomy and presented the output to the ME at the end. The subject teams were composed of university experts and schoolteachers; they worked autonomously but complying with the principles discussed by the general curriculum coordination team. The products of each team's work were discussed by the extended team every two months. The curriculum rationale prevailed, but the harmonised subject rationale was integrated into it.	Teams of different subjects were formed under the direct guidance of the ME. There was no curriculum rationale that brought together these teams. An essentially subject rationale was favoured. It responded to a request made by the ME to the schools. There was no supervising team. School teachers and some university experts from different subjects participated in each team. The subject approach prevailed.
APPROPRIATION BY SCHOOLS	Work was carried out with schools and teachers to validate, improve and assess the usefulness of the first versions produced, which then formed part of the final version.	
FORMULATION	Formulated integrating observable and mobilizable results (referring to competencies, knowledge-in-use) and development processes, designed for the end of each cycle, establishing intermediate steps of achievement to be managed differently by schools.	Operative formulation, translated into observable outcomes quantified where possible. Organisation of these results by school year as a defining prescription of pass/fail per year.
PROPOSED USE	Not mandatory. Support for joint work with teachers from school departments and class councils in the light of the other curriculum documents. It aimed to clarify the existing syllabuses in an operative manner, not to replace them, but to make them easier to read.	Mandatory. Clear orientation towards the results to be achieved. It has had much impact on the production of textbooks, shaping for schools the pragmatic version of the syllabuses.

Source: Prepared by the authors.

[27] The Learning Outcomes were included in the curriculum continuity of the 2001 documents. According to the text of the ME, 'The "Learning Outcomes" project is part of the Comprehensive Strategy of National Curriculum Development outlined by the Ministry of Education in December 2009. It consists in the design of curriculum management references for each subject or subject area, in each cycle of studies, developed in its sequence by years of education, also including final goals for pre-school education. These references are subject to adjustment within the autonomy of each school or groups of schools. They translate into the identification of the competencies and performances expected from students, on the understanding that such competencies and performances show the effective achievement of learning in each area or subject and also the transversal learning recommended in the curriculum reference documents (National Curriculum or Curriculum Guidelines for Pre-School, and Syllabus or Syllabus Guidelines of the Subject or Subject Area). The Learning Outcomes are, therefore, instruments to support curriculum management, and are made available to be freely and voluntarily used by teachers in their daily work. As they are not normative documents, their effective use is intended to result from the recognition of their practical usefulness by teachers, students, and families. The project foresees its development in four stages until 2013.' http://metasdeaprendizagem.dge.mec.pt/metasdeaprendizagem.dge.mec.pt/index.html

[28] Its operationalisation was the object of a contract signed between the Ministry of Education through the Directorate General for Innovation and Curriculum Development (DGIDC) and the Institute of Education of the University of Lisbon. Under this contract, a core team was formed, coordinated by Natércio Afonso, in charge of the design, organisation, and coordination of the project. The coordination team consisted of Natércio Afonso (Coordinator), Alexandra Marques, Cecília Galvão, Isabel Lopes da Silva, Maria do Céu Roldão, Maria Helena Peralta, and Teresa Leite (Cf DGIDC, http://metasdeaprendizagem.dge.mec.pt/metasdeaprendizagem.dge.mec.pt/index.html)

Although the *Learning Outcomes* (2009-2010) were never homologated, and the *Curriculum Outcomes* (2012) were (at least in part), the knowledge of both added another layer of imprecision in schools, aggravating the lack of clarity due to an array of documents that overlapped, in many cases without revocation of the previous ones, and largely by the dominant culture of compliance with the prescribed versus co-construction and reconceptualization.

2.3.4. The 2018 reconfiguration – Decree-Law No. 55/2018 of 6 July and Decree-Law No. 54/2018 of 6 July

What was the situation then at the time the 2016-18 curriculum redesign process took place regarding the role played by teachers' associations? Essentially, it is important to understand that it was a step towards generating, once again, curriculum harmonisation and coherence without undertaking a complete reconstruction of the numerous existing documents.

Following the difficulties described above, in which successive governments implemented more and more guidelines in order to clarify what was really important to learn, and following lines that varied with the curriculum orientation – *Learning Outcomes* (2010) and *Curriculum Outcomes* (2012) – a new attempt was made in 2016-2017 to stabilise this dual relationship between the essential and the diversifiable, originating, as pointed out, in the effects of school massification and aiming to improve success.

> This path has been translated into two fundamental steps:
> **1.** The previous definition, discussed among social and educational actors and submitted to public consultation, of a students' profile competencies (*Students' Profile by the End of Compulsory Schooling* – 2017), guiding the entirety of the curriculum documents.
> **2.** The reconfiguration of a curriculum reference matrix based on a common conceptual structure and combining the multiple previous references (Syllabuses, National Curriculum, Goals, etc.) – synthesizing the EL (2018-2019) of the subjects and subject areas, combined with the competencies inscribed in the PS. The aim was to seek a re-signified construction of the various existing documents, establishing the basis for the possible redrafting of a true curriculum reference that, in time, could gradually dispense with the accumulation of pre-existing documents.

This time the participation of the TAs was expressly requested as authors, with support from consultants invited by the TAs and curriculum experts appointed by the ME, aiming to establish an aggregating curriculum benchmark that would focus on (a) the achievement of final competencies and (b) ensuring the combined path of common EL and curriculum choices made by schools, which could best contribute to achieving this comprehensive purpose expressed in the SP.

Therefore, it was not easy for the TAs to manage this challenge in which they were involved, in the presence of multiple curriculum reference documents – a complex process that, although starting from coherent curriculum assumptions, included several problematic areas in the very development of the process and in the assessment of the available curriculum knowledge. It is the voice of the TAs that constitutes the object of study in this text.

3. Methodology

Social Network Analysis (SNA) is a theory that supports a methodology for the graphical and quantitative formalisation (statistics for quantitative network analysis) of concepts abstracted from social reality processes. The advantage of the SNA is its focus on the relational aspect of the data collected (Wasserman & Faust, 1994).

The concept of a social network refers to a structure of links between actors, organisations or social institutions in a given social system. The links may consist of kinship, friendship, professional relationships, commercial exchanges, or any other foundation that forms the basis of a relationship. Network analysis considers social reality as a structure of relationships involving interdependent entities (groups, individuals, organisations, etc.).

The basic principle of network analysis is that the structure of a social relationship determines the content of that relationship. It seeks to detect patterns of interaction and explain why they occur and what their consequences are. Thus, network analysis (Fialho, 2014; Wasserman & Faust, 1994) assumes a rationale of structural analysis based on two core aims (1) identifying certain patterns of social interaction and (2) understanding the influence of these patterns on the behaviour of social actors. The main relationship patterns that can be traced in a social network with reference to the position of the actors in that network are the following (Cross & Parker, 2004):

- *central connectors* or *hubs*, actors who have a high number of relationships in the network;
- *boundary spanners*, actors that connect the subgroups (cliques or small groups) of a network acting as an interface between these subgroups, i.e., they can facilitate critical links between two subgroups, thus avoiding the isolation of these subgroups;
- *information brokers*, actors who are closer, even if indirectly, to every member of the network and are the shortest path between two people for most network actors. These actors have a great influence on the flow of information in the network; they are called on to start the dissemination of information or increase connectivity in the network;
- *peripheral people*, individuals who have few or no connections within the network.

The type of graph used to represent social networks is called a 'sociogram.' In a sociogram, the *nodes* are equivalent to the actors, and the segments of lines correspond to the links or *ties* (Wasserman & Faust, 1994; Scott, 2000). The network is understood as a set of nodes connected by links or edges that constitute a *set of* actors. These links are classified as (i) *undirected ties* – lines without arrows showing directionality between pairs of nodes or (ii) *directed ties* – they indicate that the connections show the direction from one node to another (the arrow at the end of each line segment indicates the direction of each connection, i.e., if it is bidirectional or not). Links can express a numerical value that discloses the strength (frequency) of the connections between nodes.

Thus, SNA as a theory and methodology meets the objectives of the present study: to understand the dynamics of interaction between teachers' associations during the collaborative process of drafting EL for basic and secondary education, as well as the activities performed and the outputs produced during that process.

The literature suggests that in the social analysis of networks in closed groups (Borgatti & Molina, 2005; Cross & Parker, 2004), as is the case in this study, in which the groups are the teams made up of the various TAs, one should start by delimiting the group to be analysed so that subsequently one can collect from each of the elements that make up the teams their type and degree of relationship with each other. The strategy for gathering information on the members of the associations' teams consisted of emailing each association to ask them to complete an Excel spreadsheet with the identification (names or their replacement by numbers) of the coordinators, team members and consultants, as well as the identification of the area of speciality for which they were invited to join the team, their qualifications, institution of professional affiliation and information on whether they belonged to the association.

The objectives and research questions of this study, together with the identification data collected, underpinned the construction of a network analysis questionnaire. The questions were designed around the constitution of the teams of the associations to gauge the relationship of the group as a whole and the role of each individual within this group, as well as the interaction with other associations. The questionnaire was made up of open and closed questions and was structured into six parts: (i) composition of the team; (ii) interaction within team members; (iii) interaction between teams of associations in the same subject area; (iv) activities conducted; (v) working tools used to conduct those activities; (vi) outputs produced by the association. The last three parts comprised questions based on the work sessions carried out and outputs produced individually by the associations and based on their interaction with the other associations in the same subject area.

The survey was sent by e-mail for the eighteen associations. The answers were subsequently elaborated based on eighteen focus groups with the elements of the teams of the eighteen associations. The focus groups[29] were comprised of six or five elements, whose selection was made by the TAs on condition that each group included, at least, the coordinator of the team and other elements[30] that had participated in the drafting of the EL by school year and by subject, thus ensuring the diversity of the participants[31]. The reliability of the results obtained through the focus group technique was guaranteed by (i) the constitution of small groups (Morgan, 1996) and (ii) the participation of two researchers, one taking notes and the other acting as a moderator (Morgan, 1997).

The graphical representation of the relationship patterns within the teams of the respective associations was drawn using Gephi 0.9.2. The data collected from the eighteen questionnaires

[29] The focus groups also had the purpose of building a model on the skills and knowledge needed by teachers for curriculum design at the macro-level, which resulted in an article that was published.

[30] In three cases, the number of participants was lower due to the unavailability of some elements of the associations' teams.

[31] The ME granted full autonomy to the associations to build their teams. In every association, most of their team members either belonged to the board of directors or were associates. According to the associations, the criteria for choosing their team members were based on proximity, scientific and pedagogical affinity. Consequently, the positions taken by the members of the teams were very consensual, hence the only requirement of the researchers in the selection of the members for the focus group: the presence of the coordinator and of members who had participated in the various EL assigned to each association (by school year or by subject).

were processed using Microsoft Excel in a square matrix that was later transformed into two different databases so that the data could be imported into Gephi: (i) one for the identification of the nodes (with the roles of the elements in the team – coordinator, team members, consultant, and mediator), and (ii) another one for the identification of the edges (of the links, directions of the links, and their frequencies).

To ensure data confidentiality and anonymity, each association is represented by a letter and each team member by the respective letter of the association and a number. The relational dynamics of the associations were represented in graphs according to the related areas, defining four thematic areas: Languages, Social Sciences, Sciences and Technologies, and Expressions (identified randomly by letters A to D).

The attributes of the actors referring to their functions in the associations' teams are represented by geometric figures, for which the polygon plugin provided by the online Gephi support platform was installed. The attributes referring to the actors' areas of training or expertise are represented by a colour scheme developed by the authors and available on the Data Table tab, Appearance option.

The initial graphs drawn by Gephi are created randomly, positioning the nodes without any apparent logic. However, to facilitate the analysis, we can use some Gephi features that change the position of the nodes and also enable a more comprehensive presentation of the graphs.

Thus, for the representation of the three graphs, we chose Force Atlas distribution from the Layout tab that 'makes graphs more compact.' We also selected the Attraction Distribution option from Force Atlas to show the 'authorities in a more central position than the hubs.'[32] For the graphs of the networks A+B and D, the default values of the Force Atlas distribution were kept; but for the graph of network C, the default values were changed to improve the visualisation of the network using the options Repulsion strength (set from 200 to 50) and Maximum displacement (set from 10 to 5). This change in values derives from the fact that it is a smaller network when compared to the others, and therefore these changes make the visualisation of images even more compact.

The centrality of the three graphs was normalised at [0,1] to calculate the distance measures (diameter, radius, and average path length of the edges), which allowed us to view graphs more clearly. Otherwise, the lines would become too thick due to the numerous interactions and make the graphs unreadable. To calculate the centrality and the density of the networks, the direction of the edges was not taken into account because the relations were mostly bidirectional. The direction implies the existence of arrows at the edges of the edges (links) that can also make the graph less legible.

Table 2 describes the statistics from Gephi that are more appropriate for the analysis of the networks formed by the TAs.

[32] Information contained in Gephi 0.9.2.

Table 2. Gephi statistics used to analyse the networks formed.

STATISTICS	DESCRIPTION
Average network degree	The average number of edges connected to a node.
Network diameter	The shortest distance between the two most distant nodes of the network: it represents the linear size of the network.
Average path length	The average graph distance between pairs of nodes.
Graph density	The number of edges divided by the maximum possible edges. It shows how close the network is to being complete or comprising all possible connections.
Clustering coefficient	A measure of the degree to which nodes in a graph tend to cluster together.
Connected components	The number of components in the graph.

Source: Prepared by the authors, adapted from Gephi 0.9.2.

4. Results

4.1. Characterisation of the teams formed by the teachers' associations

In the preparation of the EL, as shown in Table 3, the eighteen TAs brought together 129 members in their teams with 86 consultants in a total of 215 members (nodes), with 1549 relations between them (edges). Generally, the associations invited consultants to their teams, with the exception of six TAs that chose not to use this resource (see Figures 1, 2, 3, and 4). In two of the associations' subject areas (C and D), it was necessary to resort to a mediator to ensure the process of interaction around the drafting of the EL.

Table 3. Number of members of TA teams by subject area and edges.

ASSOCIATIONS BY SUBJECT AREA	No. TEAM MEMBERS	No. CONSULTANTS	MEDIATOR	TOTAL MEMBERS	No. EDGES
Subject area A	37	17	0	54	508
Subject area B	30	21	0	51	293
Subject area C	28	25	1	54	515
Subject area D	34	23	1	57	232
TOTAL	129	86	2	215	1 548

Source: Network analysis questionnaire prepared by the authors.

Regarding institutional affiliations, we can see from Table 4 that the associations have formed teams made up overwhelmingly of their board members and associates (121) as only seven elements do not belong to the associations. Among the members of the associations, the majority are primary and secondary school teachers (90), and the rest are mainly affiliated with higher education institutions.

The consultants invited by the associations are mainly affiliated with higher education institutions, and more are from universities than polytechnics.

Table 4. Number of team members of the associations and their consultants by institutional affiliation.

INSTITUTONAL AFFILIATIONS	No. ELEMENTS THAT BELONG TO THE ASSOCIATION	No. ELEMENTS THAT DO NOT BELONG TO THE ASSOCIATION	No. CONSULTANTS
School of Basic and/or Secondary Education	90	7	19
Higher Education (not specified by the TAs)	11	–	4
NOVA University of Lisbon	2	–	11
University of Lisbon	7	–	17
University of Porto	1	–	8
University of Minho	1	–	4
University of Coimbra	–	–	9
Polytechnic Institute of Porto	1	1	1
Polytechnic Institute of Lisbon	–	–	1
Polytechnic Institute of Viseu	1	–	–
Polytechnic Institute of Santarém	–	–	1
Aberta University	1	–	–
Lusíada University	1	–	–
University of Aveiro	–	–	–
Catholic University of Porto	–	–	–
João de Deus Higher School of Education	1	–	–
Embassy	1	–	–
Institute for Educational Evaluation (IAVE)	1	–	–
Language Institute	–	–	–
Foreign University	1	–	–
Scientific Society	–	–	–
Foreign University	–	–	–
Scientific Association	1	–	2
Pedagogical Teachers' Association	–	–	1
TOTAL	221	8	86

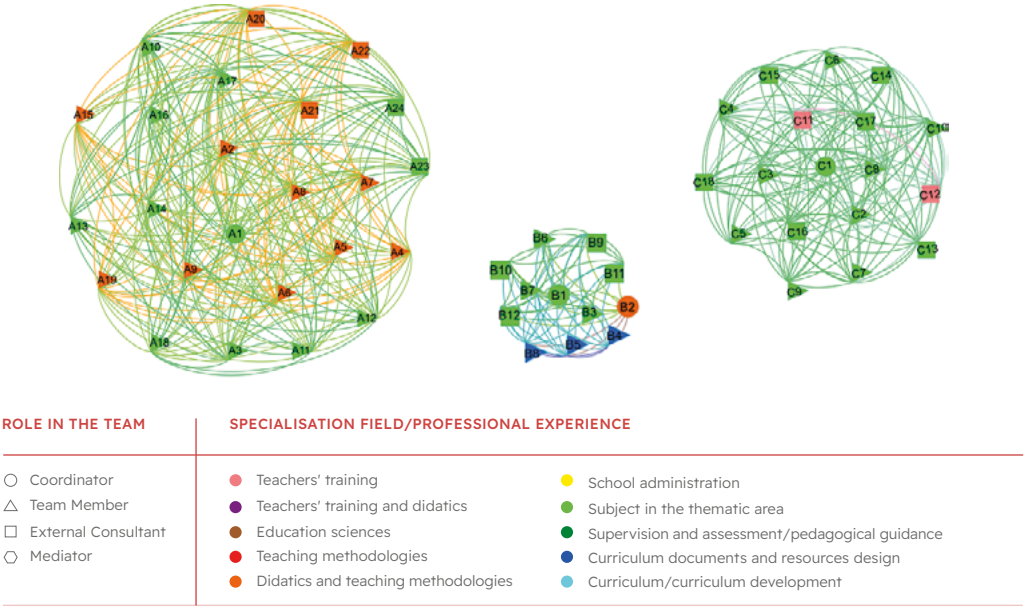
Source: Network analysis questionnaire prepared by the authors.

4.2. Interaction between teachers' associations by subject areas

4.2.1. Interaction between Teachers' Associations by subject area: subject area A

The three TAs in subject area A formed their respective teams (groups A-C), with a total of 54 members (nodes) and 508 interaction relationships established between them (edges) (Figure 2). The members of every team collaborated a great deal with each other.

Figure 2. Representation of the relational dynamics of teachers' associations in subject area A.



Source: Prepared by the authors using Gephi 0.9.2.

The three teams formed by the three associations are made up of members whose training is mainly in the subject area, followed by teaching methodologies. Team B also has elements with professional experience in curriculum documents and resources design[33], and Team C in the area of teachers' training.

In terms of links, we can see that associations A, B, and C did not interact beyond the respective members of the team constituted for the elaboration of the EL since no external links to their team can be observed in the graph (Figure 2).

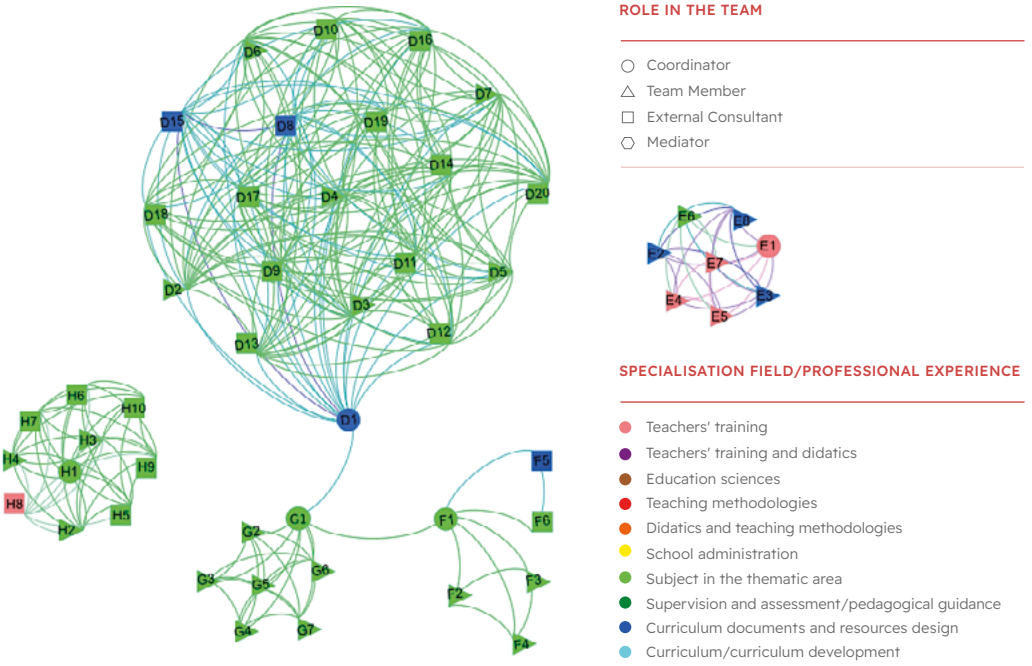
In this graph of subject area A, we can find a trend that will also surface in subsequent graphs: the coordinators play the role of central connectors or hubs in their teams, actors who have a high number of relationships in the network due to the hierarchical position they hold.

4.2.2. Interaction between Teachers' Associations by subject area: subject area B

The five TAs in subject area B formed their respective teams (groups D-H) with a total of 51 members (nodes) and 293 interaction relationships established between them (edges) (Figure 3). The members of TA D were the most collaborative within their team.

[33] Experience in curriculum documents and resources design does not refer to area of specialisation, instead it means that these individuals have experience in curriculum documents and resources authorship, i.e., they were invited by the TAs because they are authors of textbooks, syllabuses and/or other Portuguese curriculum documents.

Figure 3. Representation of the relational dynamics of the teachers' associations in subject area B.



Source: Prepared by the authors using Gephi 0.9.2.

The five teams formed by the five associations were composed of elements whose training is mainly in the thematic area. TA E had some diversity of specialisations: teachers' education, thematic area, and also elements with professional experience in curriculum documents and resources design[34]. This association and TA G are the only ones in this subject area that did not invite consultants to join their team.

Regarding interactions, we can see that associations D, F, and G interacted with each other, but only through their coordinators (D1, G1, and F5). In any case, it was the coordinator of TA G that mediated between the three associations, given that there is no connection (edge) between the coordinator of TA D (D1) and TA F (F1). The remaining team members did not take part in this interaction.

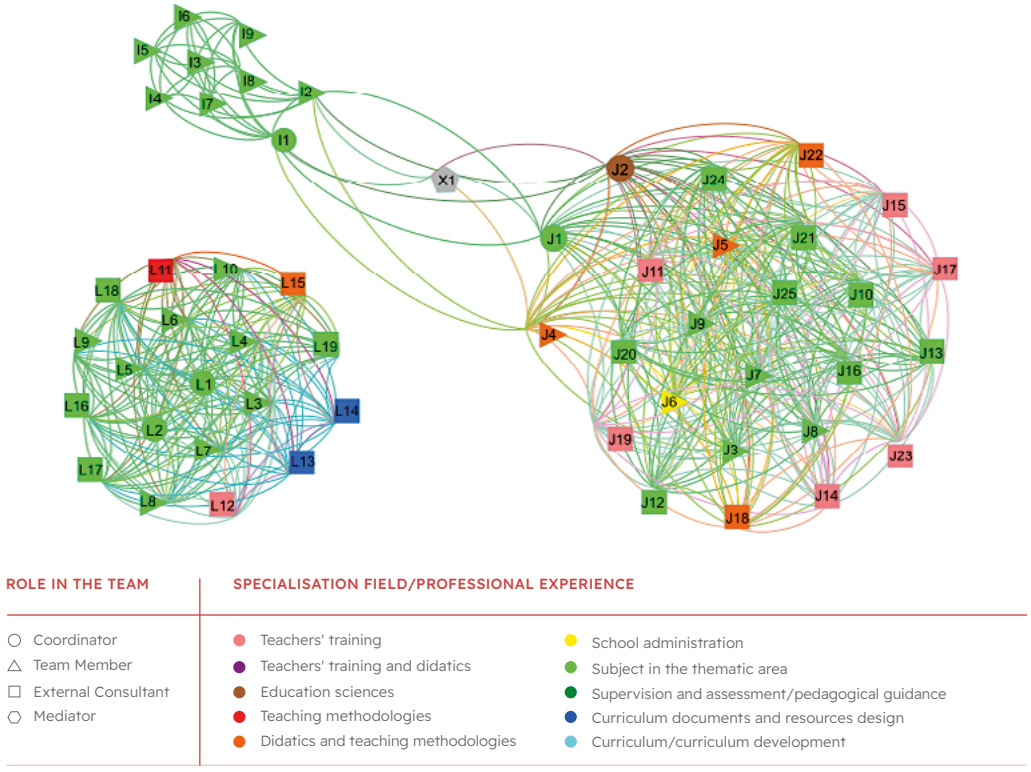
Subject area B illustrates another role played by the associations' coordinators, that of boundary spanners, actors who connect subgroups (cliques or small groups) of a network, playing the role of interface between these subgroups. As we can see in the next associations' subject areas (see Figures 4 and 5), the coordinators are chiefly the elements that establish the link with the other groups/associations.

[34] Experience in curriculum documents and resources design does not refer to area of specialisation, instead it means that these individuals have experience in curriculum documents and resources authorship, i.e., they were invited by the TAs because they are authors of textbooks, syllabuses and/or other Portuguese curriculum documents.

4.2.3. Interaction between Teachers' Associations by subject area: subject area C

The three TAs in subject area C formed their respective teams (groups I-L), aggregating a total of 53 members (nodes) and 515 interaction relations established between them (edges) (Figure 4). The members of associations L and J collaborated a great deal within their teams.

Figure 4. Representation of the relational dynamics of teachers' associations in subject area C.



Source: Prepared by the authors using Gephi 0.9.2.

The three teams formed by the three associations are composed of elements whose education is mainly in the subject area, with TA I standing out since all its team members have this specialisation. The team members of TA L and J have more diversified specialisations, ranging from teachers' education, teaching methodologies, didactics and teaching methodologies, curriculum documents and resources design, school administration, and education sciences. Association I is the only one in this subject area that has not invited consultants to join its team.

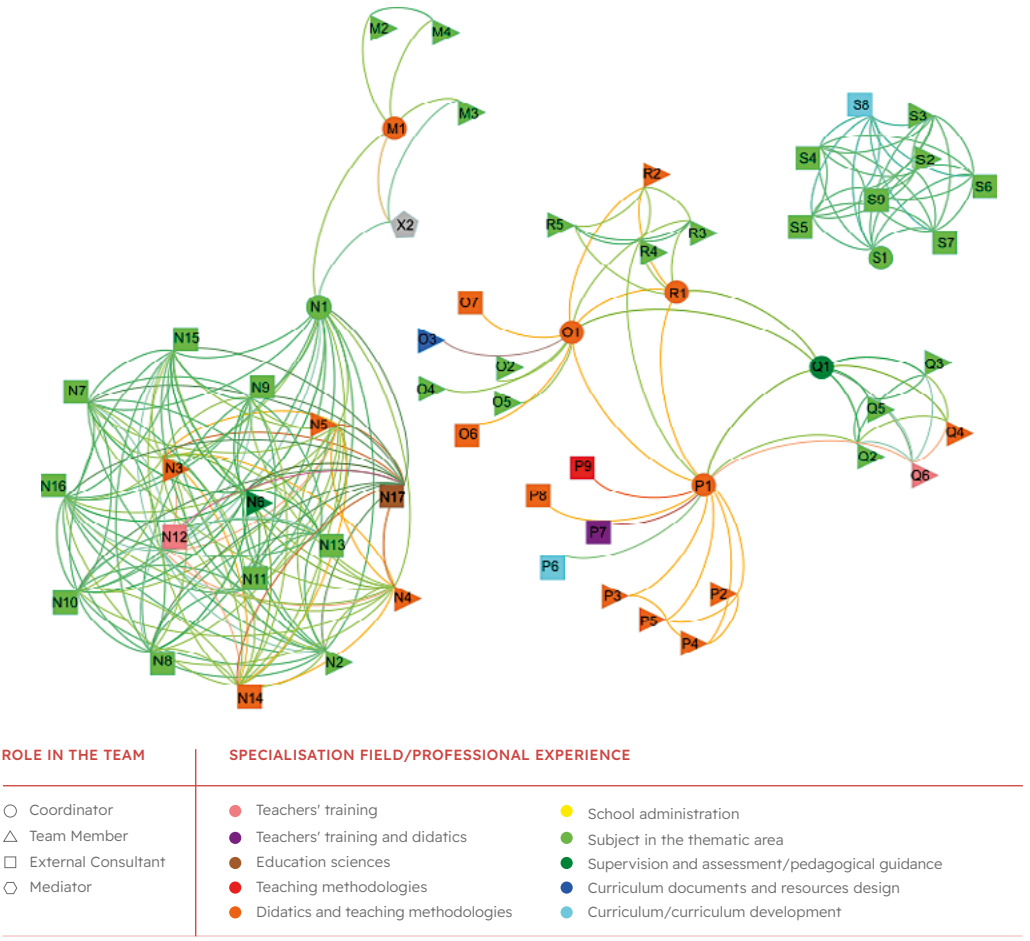
Association L has no links with other associations in the same area. Associations I and J needed a mediating element (X1) from outside their respective teams to interact. This mediation occurred only with some elements of the two teams (J1, J2, and J4 versus I1 and I2). These two associations also interacted without mediation through one of the coordinators of TA J (J1) and an element of its team (J4) with TA I through its coordinator (I1) and an element of its team (I2).

In subject areas C and D (Figure 5), the associations needed to resort to mediators from outside their teams who functioned as boundary spanners, actors who facilitate critical links between two subgroups due to existing conflicts.

4.2.4 Interaction between Teachers' Associations by subject area: subject area D

The seven TAs from subject area C formed the respective teams (N-S groups), aggregating a total of 57 members (nodes) and 232 interaction relationships established between them (edges) (Figure 5). As shown in Figure 4, TA N presents greater dynamism in the interactions within its team.

Figure 5. Representation of the relational dynamics of teachers' associations in subject area D.



Source: Prepared by the authors using Gephi 0.9.2.

With the exception of the other subject areas, there was practically no collaborative work in associations O and P, where each team member only worked with the respective coordinator. In association P, only three elements (P2, P4, and P5) worked together in the preparation of the EL.

In this subject area, most of the members of the associations were also invited because of their specialisation in the subject area (AP N, M, R, Q, S). However, TA P is the only one in this subject area and of the remaining ones not to have any members with training in the subject area and to value above all didactics and teaching methodologies, in addition to having members specialising in three other areas: teaching methodologies, teachers' education and didactics, and curriculum/curriculum development. It should be stressed that only two associations have elements in the team with training in curriculum/curriculum development, and both belong to this subject area D (TAs P and S).

As seen in other subject areas, not all the associations in this group interacted among themselves, and TA S does not present external links with the other associations in the same area. Associations M and N interacted through a mediating element (X2) and also have direct links but only between their coordinators (M1 and N1). Associations O, P, Q, and R have links between their teams mainly through their coordinators (O1, P1, Q1, and R1).

4.3. Synthesis of the interaction between Teachers' Associations by subject area

In short, the collaboration in the preparation of the EL by the teams formed by the TAs, as measured through the interactions identified in the four networks, took place above all within the teams of the various associations. The associations in subject areas C and A worked more intensively within their teams, with more interactions (density = 0.36 and 0.355 respectively) than the others. The connections are also higher in subject area C and A, i.e., the average number of connections (edges) between the nodes of the network (average degree = 19.074 and 18.815 respectively). In any case, the interactions between associations in the same subject area are very weak (Figure 2, 3, 4, and 5), where some associations are mostly connected by their coordinators and four associations dialogued through a mediator. The network analysis carried out shows that these are fragmented networks with isolated connected components (11 connected components). They are called small-world networks, characterised by Watts and Strogatz (1998) as having a high clustering coefficient and short path length between nodes. As we can see in Table 5, the clustering coefficient is very high for all associations by subject area, and team members can reach or be reached by others using few connections for this purpose (average path length).

Table 5. Gephi statistics used to analyse networks A, B, C, and D.

STATISTICS	SUBJECT AREA A	SUBJECT AREA B	SUBJECT AREA C	SUBJECT AREA D
Average network degree	18.815	11.49	19.074	8
Network diameter	1	4	3	3
Average path length	1	2.108	1.528	1.954
Graph density	0.355	0.23	0.36	0.14
Clustering coefficient	1	0.968	0.966	0.878
Connected components	3	3	2	3

Source: Network analysis questionnaire prepared by the authors.

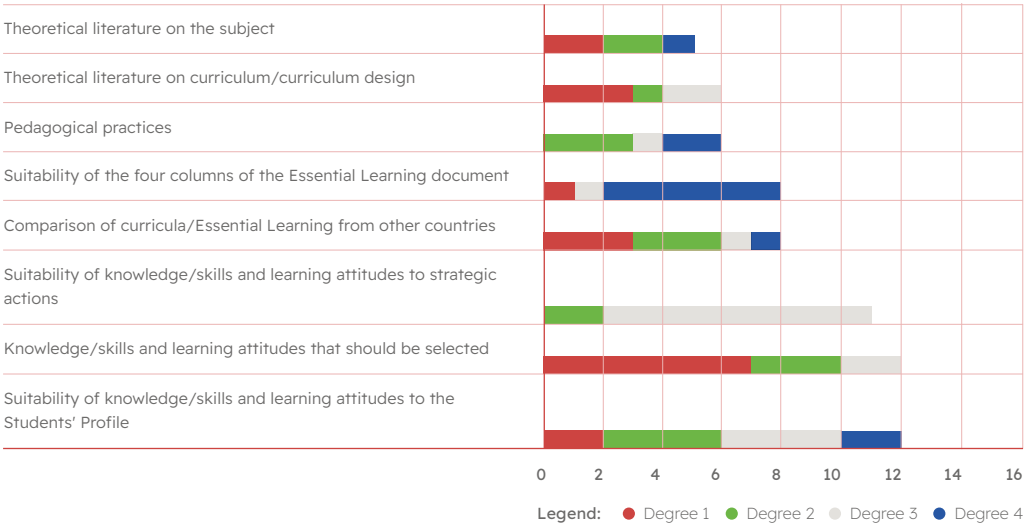
The data show that the teams formed by the TAs to design the EL worked little collaboratively with other associations in the same subject area. These data seem to show that the TAs do not collaborate much with each other, particularly regarding curriculum design.

4.4. Activities carried out by the Associations

Between October 2016 and August 2018, when the EL were completed, the associations drafted and discussed the EL in additional work sessions supplementing the work conducted by the initiative of the ME. We now intend to learn what activities were conducted, the curriculum references that were used, and the outputs that were produced both by the associations individually and in interaction with other associations in the same subject area.

Regarding the activities developed individually by the associations, we presented a set of eight possible activities in the network analysis questionnaire, allowing the respondents to add others and to choose the four most relevant ones by order of importance (from 1 to 4, in descending order of importance). None of the associations added activities. As shown in Figure 6, the most often referenced activities were: (1) Discussion on the *suitability of knowledge/skills* and *learning attitudes* to the SP; (2) Discussion on the k*nowledge/skills and learning attitudes that should be selected*; and (3) Discussion on the *suitability of knowledge/skills and learning attitudes to strategic actions*. Considering the most frequently performed activities, only the activity *Discussion on knowledge/skills and learning attitudes that should be selected* appears with a higher degree of importance (seven of the twelve associations that highlighted it consider it the most relevant activity they conducted). Interestingly, while the third most frequently mentioned activity was the discussion on the *suitability of knowledge/skills* and *learning attitudes to strategic* actions, the activity discussion on *pedagogical practices* was seldomly mentioned.

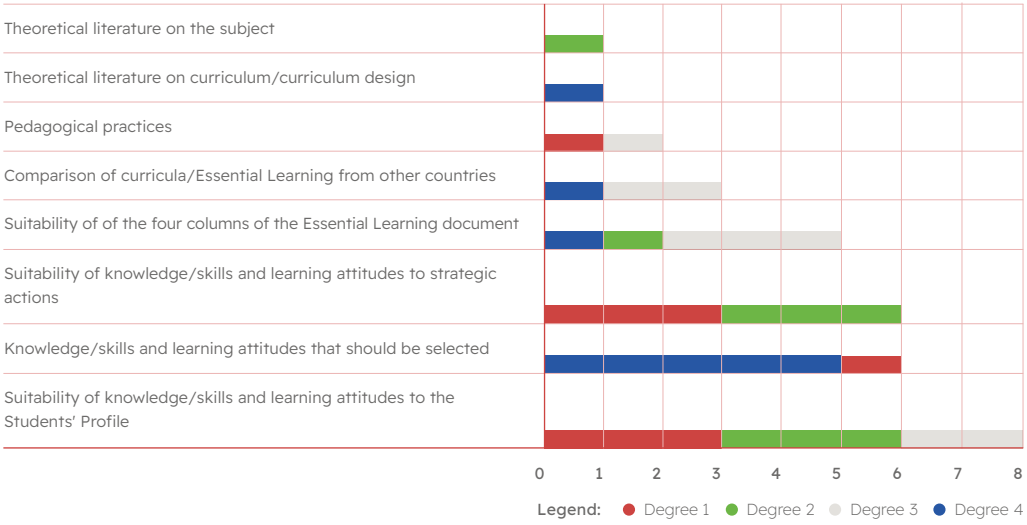
Figure 6. Discussion activities developed by the associations in their teams in the elaboration of the Essential Learning.



Source: Network analysis questionnaire prepared by the authors.

Among the least mentioned activities, besides the discussion on *pedagogical practices*, are the activities of discussion on the *theoretical literature on curriculum/ curriculum design* and discussion on the *theoretical literature on the subject.*

Figure 7. Discussion activities developed between associations of the same subject area in the elaboration of the Essential Learning.



Source: Network analysis questionnaire prepared by the authors.

Regarding the activities developed by the associations that collaborated among themselves, the eight associations that responded (Figure 7) mentioned as the activities most often carried out those that took place within their teams. However, they considered the discussion on the *suitability of knowledge/skills and learning attitudes to strategic actions* and the discussion on the *suitability of knowledge/skills and learning attitudes to the SP* as their highest priorities.

4.5. Curriculum documents used by the associations

When drawing up the EL, the ME suggested that the TAs use the syllabuses in place for the subjects, the SP, the framework document for the EL drawn up by the invited curriculum experts (Roldão, Peralta & Martins, 2017), and international curricula such as those of British Columbia, Canada, New Zealand, and Finland, for example. In addition to these working references, we asked in the questionnaire what other instruments were employed by the a ssociations. As we can see in Table 6, the TAs used a huge variety of curriculum reference documents in the discussion within their teams, among which we highlight the various national curriculum documents prepared over a time span of more than twenty years and with quite different intentions and theoretical references: previous syllabuses of the subjects, Learning Outcomes, Curriculum Outcomes, and the *National Curriculum for Basic Education – Essential Competencies* of 2001.

Table 6. Documents used by individual teachers' associations in developing the Essential Learning.

ASSOCIATION	INSTRUMENTS USED WHEN DRAFTING THE EL
AP 1	Common European Framework of Reference (CEFR); International curricula (USA, British Columbia, Canada, and New Zealand curricula).
AP 2	Curriculum Outcomes; Research of foreign sister associations.
AP 3	Common European Framework of Reference (CEFR).
AP 4	Common European Framework of Reference (CEFR); International curricula.
AP 5	Common European Framework of Reference (CEFR); Theoretical literature on the subject; Didactic literature on the subject.
AP 6	Previous syllabuses; Taxonomic tables; Theoretical literature on the subject.
AP 7	Previous syllabus of 2009; International curricula (British Columbia, Canada); **National Curriculum for Basic Education. Core Competencies**, 2001; Document entitled **A Língua Materna na Educação Básica** [Mother Tongue in Basic Education]. **Core Competencies and Performance Levels**, 1997; Learning Outcomes; Curriculum Outcomes.
AP 8	Theoretical literature on the subject; Didactic literature on the subject; OECD documents.
AP 9	Learning Outcomes; International curricula (British Columbia, Canada, Singapore, UK, and New Zealand); Theoretical literature on the subject; Literature on the didactics of the subject; Documents from international associations/organisations in the subject field; EU and OECD documents: **Agenda 2030 for Education**, OECD.
AP 10	Subject Examination Guidelines. Documents by curriculum experts.
AP 11	Previous subject syllabuses; **National Curriculum for Basic Education. Core Competencies**, 2001; International curricula (New Zealand, England, Canada); Learning Outcomes.
AP 12	International curricula (especially Canada and the UK); Theoretical literature on the subject; OECD and UNESCO documents.
AP 13	**National Curriculum for Basic Education. Core Competencies**, 2001; International Curricula (Canada, New Zealand, and Singapore).
AP 14	Learning Outcomes.
AP 15	Learning Outcomes; International Curricula.
AP 16	Previous syllabuses of the subjects; Theoretical literature on the subject and on specific didactics; Curriculum Outcomes.
AP 17	Curriculum Outcomes.
AP 18	Curriculum Outcomes; OECD Documents; International Curricula.

Source: Network analysis questionnaire prepared by the authors.

Questions on the tools used to collaborate with other associations were hardly answered, which may be a sign of the divergences in relation to the source curriculum documents. The language associations were the exception, as they all used the *Common European Framework of Reference for Languages* (2001).

4.6. Outputs produced by the Associations

The complexity of the elaboration of the EL and the public discussion that the ME wanted to generate around this process and that the associations themselves developed internally is at the origin of the elaboration of outputs beyond the EL.

Table 7 shows that the main outputs produced by the associations were communications at congresses, organisation of meetings, as well as training actions, mainly for their associates. In this regard, one association stands out because it held a massive open online course (MOOC) with the attendance of about 900 teachers.

Table 7 – Outputs produced by the TAs following the preparation of the Essential Learning.

ASSOCIATION	OUTPUTS
AP 1	– Presentations at TA seminars; – Communication in congresses/meetings of the TA; – Training actions for members.
AP 2	– Presentations at TA seminars; – Communication in congresses/meetings of the TA; – Training actions for members; – Training for non-members; – Communication in lectures taught at higher education institutions.
AP 3	– Communication in congresses/meetings of the TA; – Communications in national meetings of institutes of the subject area.
AP 4	– Communication in congresses/meetings of the TA;
AP 5	– Communication in congresses/meetings of the TA; – Results of the consultation with members on the EL; – Training actions for members.
AP 6	– Communication in congresses/meetings of the TA; – Training actions for members.
AP 7	– Communication in congresses/meetings of the TA; – Training actions for members; – Communications in higher education institutions; - Pedagogical days of teachers' organisations
AP 8	– Communication in congresses/meetings of the TA; – Training actions for members.
AP 9	– Presentations at TA seminars; – Communication in congresses/meetings of the TA; – Training actions for members; – Communication in an international seminar and a book chapter.
AP 10	– Communication in congresses/meetings of the TA; – Training actions for members; – Production of lesson plans and activities on EL; – Elaboration of two thematic notebooks with the respective corrections.
AP 11	– Communication in congresses/meetings of the TA; – Training actions for members.
AP 12	– Communication in congresses/meetings of the TA; – Communication at an international congress in the subject area.

ASSOCIATION	OUTPUTS
AP 13	– Communication in congresses/meetings of the TA; – Training actions for members; – Networking and partnerships with similar associations and training centres.
AP 14	– Results of the consultation with members.
AP 15	– Communication in congresses/meetings of the TA; – Training actions for members; – Training for non-members; – Publication of a support dossier with teaching materials.
AP 16	– Communication in congresses/meetings of the TA; – Results of the consultation with members.
AP 17	– Communication in congresses/meetings of the TA; – Workshops for members.
AP 18	– Communication in congresses/meetings of the TA; – Results of consultations with teachers before and after initiating the EL process; – Training actions for teachers and a massive open online course (MOOCs) for 900 people. – Survey of data on the implementation of EL in schools.

Source: Network analysis questionnaire prepared by the authors.

Also noteworthy is the scarcity of pedagogical outputs and surveys on the implementation on the ground at the time of the pedagogical experience carried out in schools in the 2017-2018 academic year.

Conclusion

The participation of teachers' associations in the curriculum design of the EL, a significant element of the current curriculum framework along with the SP, led us to reflect on an apparent conflict between focusing on the content of the subject individuality, of the TAs tradition, and an open curriculum approach, of holistic and transversal perspective, raised by the SP and implicit in the drafting of the EL, of which it is the guiding principle, and whose design would assume a dynamic of sharing and convergence in the alignment of contents and strategic pedagogical actions.

We then set out to study how the TAs, in this case, those that shared some proximity in the scientific area, interacted in the process of creating the EL, seeking to understand whether the interactional dynamics that emerged were characterised by convergence or divergence of actions, whether patterns of social interaction were established, which activities they developed together, how they supported their curriculum action and what outputs resulted from these dynamics during the time they were involved in the curriculum design of the EL. It was also important to know what lessons could be learned from this process that could contribute to the enrichment of teachers' curriculum practices.

The network analysis that methodologically underpinned our study allowed us to understand that the collaboration between the associations in the same subject area occurred on their own

initiative, in addition to the initiatives of the ME, in order to organise the production of the curriculum subject documents, was very weak. Collaboration between some of the associations occurred mainly through interaction between their coordinators, without involving the whole team. No less important was the fact that four associations from two different subject areas used a mediator to ensure interaction. The EL curriculum model, guided by the principle of unity of curriculum meaning and by the transversality of competencies to be developed throughout compulsory education, implied interaction between the associations and not only between the associations of the same subject area, but it came up against the subject compartmentalisation inherent in the very designation and constitution of the TAs in Portugal, reflecting, among other factors, the tradition of individual work by teachers in the Portuguese education system.

From the activities developed by the associations individually and by the eight associations that worked somewhat collaboratively, we can see that there was little discussion about *pedagogical practices*, the *theoretical literature on the subject and on curriculum/curriculum design*, which would imply essential discussions in a curriculum design process and which can be explained in part by the little and late recognition of the teachers' associations as interlocutors in curriculum reforms, whose first formal participation was in the process of the 1989-1990 Curriculum Reform (Roberto Carneiro Reform) and in the implementation of the Flexible Curriculum Management (1996-2001). These participations, although with contributions in the very formulation of syllabuses, were mainly of a consultative nature. In 2016, the invitation extended by the ME to teachers' associations gave them a measure of power over the formal curriculum regarding the definition of EL, allowing a curriculum autonomy such as there was no memory in the history of national education policy. The little discussion about t*heoretical literature on the subject* may mean an agreement on this matter within the associations and among those who managed to collaborate in some way.

The individual TAs used for the preparation of the EL a multiplicity of curriculum reference documents produced cumulatively and asynchronously over thirty years in Portugal, which was also an inhibiting factor for collaboration. It is therefore revealing that in the questionnaire, most associations did not identify the curriculum reference documents that they had used in collaboration with other associations. As mentioned above, the situation of the reference curriculum documents in Portugal has become a mosaic that has lost its unity in the three decades since the Roberto Carneiro Reform. The differences in the identification of the various curriculum references can be explained by the theoretical positions of the associations and also by the fact that some of them had been previously involved in the construction of one reference or another.

Given the complexity of the process of drawing up the EL, which lasted around a year and a half, the TAs engaged in a great deal of internal debate, as can be seen from the network analysis carried out, which culminated in the production of outputs, mainly papers at conferences, and organisation of meetings or training activities. However, we found a scarcity of pedagogical outputs and data on the implementation of EL in schools, which can be in part explained by the traditional work carried out by the associations, less focused on research activities or the production of teaching materials.

We consider relevant the testimony of four of the eighteen associations interviewed in the focus groups, when they state that the dynamics of the meetings promoted by the ME with all the

teachers' associations invited for the elaboration of the EL fostered the beginning of some collaborative work, although that only became clear after the elaboration of the EL:

> The interesting part of the process was that we, with these meetings promoted by the Secretary of State, have created relationships. We currently have a network with A, M, and H. We hold annual meetings, and we will even have a project this year to accompany some schools. This is a very interesting side effect, perhaps even much more so than the process itself. (Focus group 16)

In this sense, this study has shown that the participants acknowledge the importance of working collaboratively and involving teachers at every stage of curriculum development, i.e., not only in its implementation but also in defining the curriculum at the macro-level, especially when the formal (official) curriculum results from policies that aim to develop interdisciplinarity in schools. Also, at the meso- and micro-level, the collaborative involvement of teachers will be stronger the more schools reproduce this type of initiatives and promote the development of the curriculum in a collaborative way and the reflection on curriculum practices. This practice may contribute to do away with teachers' traditional individualism and isolation, as well as to openness to innovation and the improvement of pedagogical practices. This isolation can be more easily breached if interdisciplinarity originates in the active and shared participation of teachers from different areas of knowledge in the construction of the curriculum.

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