

## SCHOOL NETWORKS, KNOWLEDGE CIRCULATION AND SCHOOL IMPROVEMENT: THE ESCXEL PROJECT'S RESEARCH AGENDA

Susana Batista<sup>16</sup>, Eva Gonçalves<sup>17</sup>, Rui Santos<sup>18</sup>

### Abstract

ESCXEL Project – School Network for Excellence is a network of public schools in eight Portuguese municipalities, the respective local authorities and a research team in CICS.NOVA, an interdisciplinary centre of social sciences at Nova University of Lisbon. This paper presents ESCXEL's activities in order to illustrate the roles of knowledge within a school network. Three main axes of ESCXEL's activities are explored: a) *benchmarking* of results in national exams; b) *collaborative learning* in seminars and training; c) data collection, analysis and dissemination for *local planning*. All of them illustrate new ways in which knowledge circulates among different actors involved in the political process, pointing not only to regulation mechanisms of school practices but also to the potential use of knowledge as a resource to define problems and action plans at the local level.

**Keywords:** school networks; knowledge circulation; regulation; benchmarking; collaborative learning

### 1. The ESCXEL Project: an empirical reality to study new modes of regulation in education

For the last three decades, education systems worldwide have known normative transformations on their organization and management, in a context of decentralization and school autonomy policies. These changes favour the emergence of decentralized, horizontal and networked forms of regulation and configure a complex regulation system of education, promoted by different scales and actors (Barroso, 2005).

School networks are being conceptualized as a new school administration and organization tool based on horizontal relationships in order to achieve common goals. They constitute a form of voluntary regulation of a collaborative nature (Justino & Batista, 2014): they derive from the organizations' or the actors' own will, and their joint action guides, conditions or influences the allocation and management of resources and the goals and results of educational action. Within this framework, some salient questions arise, such as: How are networks in education built and by whom? How do they work and for what purpose(s)? Do they constitute a regulatory instance in education systems?

In Portugal, projects involving networks or partnerships between schools and other educational actors are becoming more common nowadays, trying to address issues such as the promotion of educational success and the reduction of school-leaving, or to draw attention to questions like the environment or volunteering. A certain number of these projects emerged from the initiative of schools, university researchers, local actors or civil society organizations.

This paper aims to present a Portuguese school network, the ESCXEL Project – School Network for Excellence. Through the description of its main activities, it is possible to raise questions about the role of producing and sharing knowledge in a school network. On the one hand, there are specific knowledge-based mechanisms in this school network which can be seen as tools for regulating school practices. On the other hand, the circulation of knowledge in this school network constitutes a resource for local action.

The ESCXEL Project is a network based on a partnership between public schools of eight municipalities (which count 38 school units totalling 166 schools<sup>19</sup>, in which are enrolled around 59.500 students), their local authorities, and CICS.NOVA, an interdisciplinary research centre<sup>20</sup>. This project was born in 2008 from the initiative of some researchers and their interpretation of the Portuguese educational system's trends and challenges. Its main goal is to foster a continuing endeavor to improve quality and performance in its schools. "Excellence" does not mean a state of top quality: ESCXEL network and its schools do not claim to be the best, but rather

16 CICS.NOVA, Faculdade de Ciências Sociais e Humanas da Universidade Nova de Lisboa (FCSH-NOVA), Portugal. Email: susanabatista@fcsch.unl.pt

17 CICS.NOVA, FCSH-NOVA, Portugal. Email: evapdongalves@gmail.com

18 CICS.NOVA, FCSH-NOVA, Portugal. Email: rsantos@fcsch.unl.pt

19 The Portuguese school system has been rearranged during the last years by grouping individual schools into "school clusters". Here, "school units" refers either to those clusters, or to individual schools as yet unclustered, which remain as discrete establishments. For commodity's sake, we will henceforth use the term "schools" for both situations.

20 CICS.NOVA is a research centre at Faculty of Social Sciences and Humanities from Universidade Nova de Lisboa (FCSH-UNL).

that they are working each day to improve, following Aristotle thoughts suggestively summarized by Durant (2006 [1926], p. 98) that “We are what we repeatedly do. Excellence, then, is not an act, but a habit”.

The specific aims derived from this general goal consist on capacitating schools and communities (comprising students, teachers, parents, policy agents and citizens) to promote educational excellence; support municipalities in the adoption of local educational development plans; identify, disseminate and monitor “good practice”; develop self-evaluation processes; and produce scientific knowledge about education. To achieve those aims, researchers mobilize scientific competencies, local authorities contribute with mobilization and coordination of resources, and schools offer their experience and innovation capacities (see Gonçalves, Cunha & Batista, 2011). In the next section, we present ESCXEL’s activities along three main axes: a) benchmarking of results in national exams; b) collaborative learning in seminars and training; c) data collection, analysis and dissemination for local planning. In each of those axes, we will illustrate our purposes with examples and some quotations from principals’ interviews and a focus-group of department coordinators, which were conducted in an exploratory study on the use of ESCXEL activities in three schools with diverse academic and socioeconomic realities and results (Batista & Gonçalves, 2015).

## 2. ESCXEL’s activities

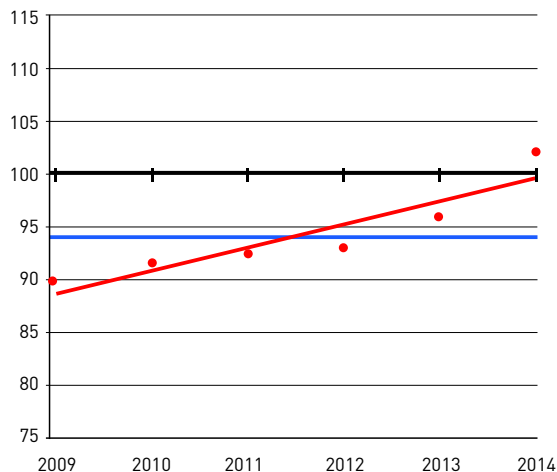
### 2.1. Systematic analysis of results in national exams: *benchmarking*

Since the beginning of the ESCXEL Project, researchers have drawn and disseminated annual reports analysing schools’ and municipalities’ results in national exams. Those reports contain several statistical indicators, which were improved throughout the years according to the users’ feedback.

Results on national exams are always analysed in relation to the national average marks, using an index in order to eliminate spurious variation due to differences in the exams’ difficulty over the years. Annual indexes are obtained dividing the average marks in each school and municipality by the national average, multiplied by 100. The national value therefore corresponds to the constant index basis of 100.

Most figures and tables track school or municipality average indexes and their progression trend over a 6-year series<sup>21</sup>. As we can see in Figure 1, the results of School A are compared to the national average (which equals 100). Each point represents that year’s index; the blue line is the index average in the analysed period; the red line represents the progression of results. In this case, although the school average in the six-years period was 6% below the national average (index average: 94,0), the progression of results was positive, and in the final year the average of School A in national exams was above the national average.

Figure 1. Average marks index in national lower secondary education exams in Mathematics in School A, 2009-2014, national average marks = 100



<sup>21</sup> It might be asked why the researchers defined a 6-year period to analyze school and municipality results in national exams. This was not a wholly arbitrary decision, as the Portuguese 12-grade schooling system is organized, according to international nomenclature, into two main 6-year levels with two cycles each (elementary, 4+2 and secondary, 3 lower + 3 upper). A 12-year period would be too distant from current school practice to make sense for school actors, and too many things might have changed in the school system in the meantime. A 6-year period thus seemed to be a reasonable choice.

These indicators are then related and summarized in an easy-to-read benchmarking tool called scoreboard, which compares all ESCXEL schools and municipalities. The scoreboards are tables encoded according to a “traffic lights system”, from green = good to red = bad, as in the example in Figure 2.

These tables present three summary indicators for each education stage and discipline:

- i) the 6-year average in relation to the national average (A, equivalent to the blue line in Figure 1, where a value of 100 or more is denoted in bright green; a value between 95 and 100 in light green; a value between 95 and 85 in yellow, and, finally, a value of 85 or less in red;
- ii) the 6-year progression trend<sup>22</sup> (P, equivalent to slope of the red line in Figure 1), where improvement is coloured green (2 or superior bright green; higher than 0 and below 2 light green), stable or slightly negative yellow, and decreases of 2% or more a year red;
- iii) the outlook (O), a qualitative measure which combines the two previous indicators according to predefined criteria.

Figure 2. Scoreboard for lower secondary education exams in Mathematics, 2009-2014 (example)

		Mathematics		
		A	P	O
Municipality A	School B	Bright Green	Bright Green	Bright Green
Municipality A	School D	Bright Green	Light Green	Bright Green
Municipality A	School A	Yellow	Bright Green	Light Green
Municipality C	School F	Red	Bright Green	Light Green
Municipality G	School I	Bright Green	Yellow	Light Green
Municipality G	School H	Yellow	Light Green	Yellow
Municipality G	School J	Red	Light Green	Yellow
Municipality B	School E	Light Green	Yellow	Yellow
Municipality K	School L	Bright Green	Red	Yellow
Municipality K	School K	Yellow	Yellow	Red
Municipality G	School G	Red	Yellow	Red
Municipality K	School M	Light Green	Red	Red
Municipality A	School C	Red	Red	Red

Schools and municipalities are ranked primarily according to outlook, which is consistent with ESCXEL’s main focus on improvement. This means that even if a school has obtained an average equal or superior to the national average (A = bright green), if the progression is negative and inferior to 2% (P = red), the outlook will be negative (O= yellow) and the school will not appear in the top positions (as is the case of School L in Figure 2).

<sup>22</sup> Progression is measured by the slope of the regression line mathematically adjusted to the set of the indexes’ values obtained by the school or municipality over the years under analysis.

Conversely, in the cases of Schools A and F in Figure 2 their good progressions (P = bright green) compensated for their average results being below national average (A = yellow and red, respectively), and the resulting positive outlook (O= light green) positioned these schools at the top area of the table.

The elaboration and dissemination of these reports and indicators became one of the key activities of the researchers' team. This activity contributes to the creation of a benchmarking culture among schools, in the sense that principals and teachers are now able to compare performances in relation to common references, particularly to the national average and to comparable ESCXEL schools. This feature is particularly evident in the following statement:

We never had another referential [before ESCXEL]. [...] It is good to have references and to know how very far or close to the norm we are (Principal 2).

The scoreboards are not elaborated to be used merely as school or municipality rankings. They are comparative maps in which each school can locate itself and, more importantly, identify other schools with which to compare itself. Schools are then able to use this network as a benchmark platform and learn from practices in comparable schools. In this sense, as argued by Barroso and Afonso (2011), the indicators can generate new circuits of knowledge and diffusion of good practice:

When we look at the comparative results, we identify municipalities with some [...] similarity in terms of size and in terms of type of students and we ask why they have better results [...]. If there is a form of organization that we can replicate which will better prepare our kids in terms of learning, we are receptive (Principal 1).

More recently, indicators of the socioeconomic context of school results at the municipal level were built upon multiple linear regression models of average exam marks at each education stage on municipal-level socioeconomic variables, such as sociodemographic, socioeconomic or educational variables (Batista, Franco & Santos, 2014). Since the regression models displayed a considerable weight of socioeconomic contexts on exam results, the derived indicators are a reliable measure of socioeconomic underpinnings of results at the aggregate municipal level<sup>23</sup>.

It is possible, then, to contextualize the municipalities' results and measure the deviation of observed results to regression estimates. As shown in Table 1, the reports state whether municipalities' results are above, similar or below to those estimated according to socioeconomic indicators. Deviations provide a different kind of benchmark from which local actors can evaluate education performances, and compare to similar socioeconomic contexts.

**Table 1. Socioeconomic indicators, observed results, estimated results and deviations, lower secondary education, in three selected municipalities (Indexes average, 2009-2014)**

	Socioeconomic indicator	Indexes average (National = 100)	Estimated indexes average (National = 100)	Deviation
Municipality A	14,3	97,1	103,9	-6,8
Municipality B	5,7	96,2	95,3	0,9
Municipality C	12,3	105,5	101,9	3,6

Pending on sufficient data availability, the range of socioeconomic indicators and estimates will be extended to earlier schooling stages, as well as to different units of analysis, namely the schools.

<sup>23</sup> The models explain 35% of the variation in municipality results in national exams in the upper elementary education, 54,5% in lower secondary education and 47,4% in upper secondary education (Batista, Franco & Santos, 2014). The lower explanatory power in the former case is due to the fact that national exams were implemented more recently at that level; therefore, a shorter series was employed and the resulting averages did not iron out as much spurious variation as in the other educational levels.

## 2.2. Seminars and training: *collaborative learning*

Learning in school networks happens precisely by “sharing experiences [...], and examining different views, perspectives and experiences” (Veugelers & O’Hair, 2005: 5). Therefore, another main activity in ESCXEL is the organization of seminars in its municipalities in order to provide a common space for school principals, teachers and municipalities’ representatives to share practices, debate specific questions and think of possible solutions. Each of these seminars has a general topic that framing the discussions, like “information and communication technologies in schools”, “school and community in the elaboration of education plans”, “pedagogical organization strategies”, and “pedagogical articulation between educational levels”, among others. The topics are defined and agreed upon in the EXCEL coordination board meetings, in which are represented all network participants. In seminars, schools shared their own experiences and listen to others:

Seminars are moments to exchange experiences with other schools, and that is very useful to us (Principal 3).

Those seminars were initially called “good practice seminars”: some schools presented to the plenary of attendants their internal projects or practices that stood out for their good results or effects. More recently, the seminar format was changed, responding to the schools’ needs for more structured information. The sharing of good practice remains at the heart of the seminars, albeit in a more framed way. Morning lectures on the selected topic are given to the plenary by experts or researchers, followed by a questions and answers period. In the afternoon, the participants are divided into three or four smaller groups to discuss specific subthemes (which can be introduced by short presentations or by a set of questions to address) and/or share specific tools and experiences related to those subthemes. In the end of the day, a summary of each of these discussions is shared with all the participants.

All seminars take place on Fridays and include a lunch gathering, besides which there is always a small and informal work meeting and a dinner the day before. Such convivial moments have been crucial to develop trust among all the network members from different schools and municipalities, which favours the establishment of a background for collaborative learning.

Training courses are another way in which collaborative learning is fostered in the ESCXEL Project. For instance, following an analysis of schools’ Educational Projects, a strategic institutional document that presents each school’s identity and main goals for a 3-year period, a team of researchers wrote down and distributed a template which schools could use to build their Educational Projects in order to overcome some critical issues identified in the analysis (namely those of unclear aims and strategies). Following a request from schools, a professional training course on Educational Projects was organized and certified by the scientific committee for teacher’s continuing training. Besides the training course contents themselves, this experience also proved to be an important way to create and strengthen the ties of the school network, through the discussion of ideas and sharing of experiences between teachers and/ or principals, as illustrated in the following statements (quoted from the training course evaluation reports):

Share of experiences/ knowledge of other schools’ reality. Professional enrichment.

It also allowed us to see which Educational Projects existed in other schools.

A second training course, requested by teachers after the first experience, is currently in place, addressing tools for data collection and systematization in school context.

In seminars and training courses, principals, teachers, municipalities’ representatives and researchers meet face to face and engage in activities that foster collaborative learning. However, as identified in an inquiry conducted in 2010 to all network members as part of the network self-assessment report, there is a need to create more possibilities for teachers to exchange ideas and resources, and follow up the discussions initiated in seminars, specifically through digital media.

### 2.3. Data collection, analysis and dissemination for *local planning*

The third core activity consists in data collection, analysis and dissemination for local education planning. This is as yet the least developed activity, and also the one in which researchers have been more involved during the last few months. This takes place at three different levels: municipalities, schools and classrooms.

At the municipal level, the research team is assisting local authorities in promoting an integrated territorial development. This work is based on a proposal to help design Municipal Educational Development Plans and to support their implementation, through the collection/ dissemination of data and the production of diagnostic and monitoring reports, in a pioneering approach on local education planning in Portugal.

The aforementioned survey applied to ESCXEL members also identified the communication between the research team and municipalities' representatives as a crucial area for improvement. In order to tackle this issue, two experienced researchers from the geography and territorial planning field joined the team, and databases are being organized with patterned information on partner municipalities.

At the school level, the research team is also organizing and presenting tables with relevant information on school variables. This information is based on a national database provided by the Ministry of Education, which integrates data on all public education establishments. Tables contain values for all ESCXEL schools and municipalities, as well as the national averages. They cover information on the size and distribution of the student population across the school offer (for instance, the number of students per class according to levels and modalities of education), demographic and socioeconomic characteristics of the student population (gender, nationality, type of social support, parental education), information about the teaching staff (size, age and time of service average, students to teacher ratio) and results (retention and leaving rates according to level and modality of education).

The availability of this information allows schools to compare some of their socioeconomic and organizational characteristics; it is also important as a diagnostic for the definition of goals and school strategic planning. These are some of the issues pointed by teachers in a feedback of a first draft of these tables:

[The document] contains interesting and important data to define and characterize our school and it allows, at the same time, a comparison with other schools of this municipality and of the network [...]. Anyway this data will be taken as a starting point for a further analysis of the evolution on the improvement of the school's results.

Data on organizational variables, schools and results characterization [...] [are] a working basis for the development of school's strategic documents, namely the Educational Plan and Annual Activities Plan.

Finally, at the class level, there is a pilot project under way in one ESCXEL school called "profile classes", which aims at experimenting a different way to group students in classes in order to improve their achievement in the core disciplines of Mathematics and Portuguese, which may avoid the problems inherent to full "level" or "track classes" while still helping teachers to plan lessons according to the requirements of each child profile. "Profile classes" is a model for organizing classes and planning lessons, involving five stages: i) identifying students' profiles, ii) organizing classes, iii) selecting human resources, iv) implementing adequate teaching strategies, v) monitoring students' performance and adapt teaching strategies.

ESCXEL researchers were responsible for the first stage by analysing students' performance during the previous school year. Each student performance in Portuguese and Mathematics was analysed in comparison to the student's average final grades obtained in both disciplines in the previous school year. Whenever a student had either a negative grade in both disciplines, or a lower grade in one discipline as compared to his/her average, regardless of whether the grade was negative or positive, this was interpreted as displaying a performance deficit in those disciplines.

This analysis produced four groups of students with similar performance profiles – Group 1, deficit in Portuguese; Group 2, deficit in Mathematics; Group 3, deficit in both Portuguese and Mathematics; and Group 4, No deficit (students with similar and positive grades in both disciplines). Within each group, smaller subsets were identified according to their fragilities in each specific competency: reading, writing, grammar and oral speech

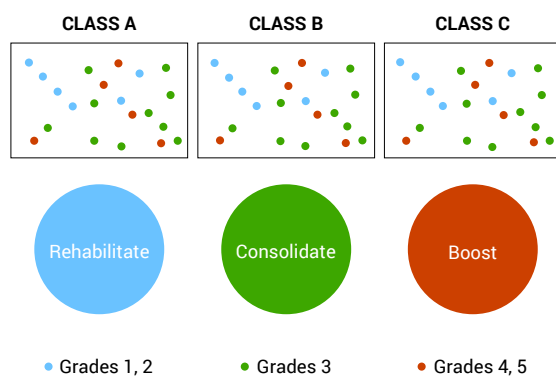
in Portuguese, and problem solving, mathematical thinking, mathematical communication and mental calculation in Mathematics, which were assessed through an analysis of the scores obtained by each student in each competency within each discipline.

Stages 2 and 3 were the responsibility of the principal's team within the school. First they organized classes according to the groups identified in stage 1, mixing students with positive and negative grades but with deficits in the same discipline. Secondly, to each Portuguese class and each Mathematics class, the principal allocated the most adequate teachers, according to the respective profile requirements. It was also necessary to organize a weekly schedule that would guarantee that all Portuguese classes in the same educational level took place at the same time, as well as all Mathematics classes.

Next stage, number 4, is the design and implementation of teaching strategies by teachers of Portuguese and Mathematics, as well as by all teachers of the main classes. For example, in a main class with students of a Portuguese profile showing deficits in reading, teachers from all disciplines may implement a strategy to have those students reading out loud a text or a problem more often.

During stage 4, teachers experimented with the new model of class organization for the main disciplines (See Figure 3). Students attend lessons in most disciplines (History, Geography, Physical education, etc.) in their main class (A, B or C). In Portuguese and Mathematics, students from all main classes with grades 1 and 2<sup>24</sup> in the discipline were dislocated to the "Rehabilitate" class to recover the competencies they needed to improve. Students with grades "3" were placed in the "Consolidate" class to consolidate their competencies, and the ones with better grades went to the "Boost" class where the assigned teacher was able to work on strategies to boost their performances.

Figure 3. An illustration of the organization of profile classes in a given discipline (Portuguese or Mathematics)

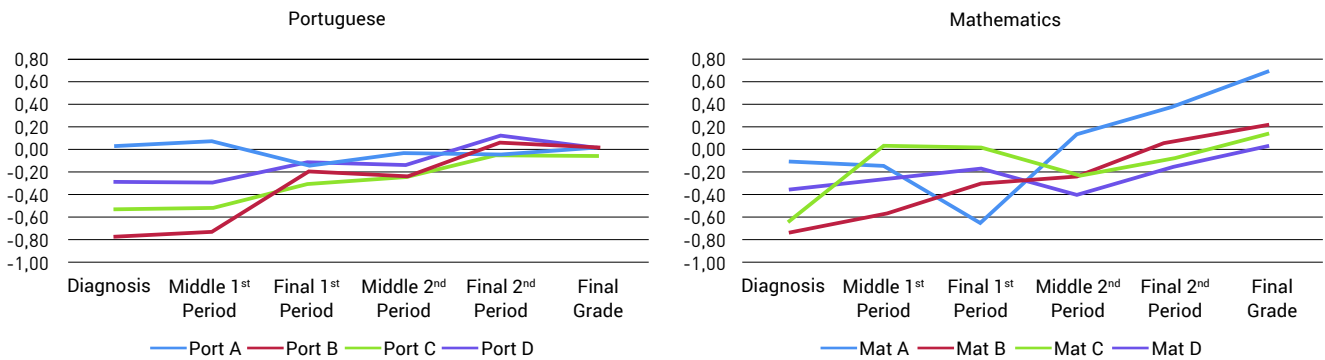


Finally, ESCXEL researchers are responsible for implementing the last stage of the model, which is to monitor students' performance. The team is currently working on the analysis of data collected since the beginning of this pilot project, in order to present stable monitoring reports on students' and class progress. For instance, Figure 4 displays the evolution of the disciplines' marks in four fifth grade main classes (A, B, C, D) throughout the school year, as deviations from the reference mark 3<sup>25</sup>.

<sup>24</sup> Marks are scored from 1 to 5.

<sup>25</sup> According to the rating scale, 3 is the positive threshold grade, which is why it was used as the reference mark.

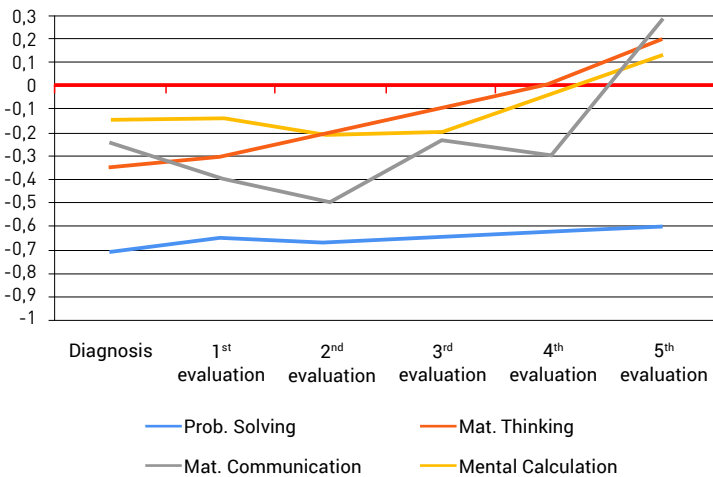
Figure 4. Evolution of disciplines grades (as differences to the reference mark = 3) in fifth grade, school year 2013/2014



In this school, classes A and D were identified as Mathematics Profile and B and C as Portuguese-Mathematics Profile. Figure 4 shows considerable improvement in the performance of classes A and D, especially the former, in students' performance in the respective profile discipline of Mathematics. The other two classes also improved over the school year, in both Mathematics and Portuguese.

The monitoring reports also provide information about each students' performance in each discipline according to the specific competencies. To complete the set of data which the teachers may use to implement the adequate strategies, researchers added information about each class's performance in key competencies (Figure 5).

Figure 5. Evolution of the average marks (as differences to the reference mark = 3) in the key competencies of fifth grade Mathematics in Class A, school year 2013/2014



For example, class A in Figure 5 shows one main deficit, that of problem solving, which all teachers, and more specifically the Mathematics teacher, should consider addressing better in their strategies. Teachers in profile classes are working on how to use monitoring reports to set and adapt strategies according to each class specific deficits.

The survey applied to ESCXEL members as part of the aforementioned self-assessment report pointed to another possible area of development within the activity of data collection, analysis and dissemination for local planning: communication between schools and students' families and surrounding communities. One researcher has concluded her PhD thesis on those subjects (Gonçalves, 2015). Upon the results of this research, pilot projects will be elaborated to improve families' formal participation and involvement in ESCXEL network.



### 3. Knowledge circulation in school networks: regulation and resource for school improvement

The ESCXEL school network, which has the particularity of having a research centre as a partner, illustrates the new relation between knowledge and policy, reflecting the wider movement towards cognitive and reflexive societies in which knowledge is at the centre of social action (Pons & Van Zanten, 2007).

First of all, the relation between knowledge and policy means that knowledge is used to create regulation tools, or becomes a regulation tool itself (Barroso & Afonso, 2011; Pons & Van Zanten, 2007). Knowledge-based regulation tools represent new ways in which public action is coordinated, based in knowledge production, dissemination and exchange among actors in the field of knowledge and political actors (Afonso & Costa, 2011). Through these types of tools, the actors' behaviour is regulated by knowledge circulation mechanisms rather than constraint. Benchmarking in ESCXEL Project can be seen as a knowledge-based regulation tool and in its own way, it promotes a regulation of practices within a school network. The same can be said about the sharing of good practice, which is a potential source for regulated actions, as they show what could be done and how (Barroso & Afonso, 2011). This constitutes a soft regulation, which effect depends on the reception, interpretation and use by local actors. In fact, the meaning of knowledge is built during its interpretation and not inscribed in the tool itself (Freeman & Sturdy, 2007 in Mangez, 2011).

The relation between knowledge and policy points, secondly, to an understanding of knowledge as a resource for action and decision making (Mangez, 2011), which depends on the local mobilization of knowledge. Some activities in ESCXEL network, like training courses or dissemination of data analysis for local planning, are specifically dedicated to capacitate actors for action (Maroy, 2013). Other activities, including the ones presented as knowledge-based regulation tools (cf benchmarking and good practices), can also be seen as resource for action, simultaneously based upon knowledge, knowledge producers and knowledge users, without rigidly set roles: at different stages in the process, all actors in the network reciprocally become producers and users drawing on each others' knowledge. In this sense, we follow Delvaux's (2009) approach, which breaks with the formal and scientific concept of knowledge and with previous linear perspectives of the traffic between knowledge producers (usually actors from the scientific field) and receivers (political actors). The new approach considers a wider definition of knowledge and studies how different actors select and combine various kinds of knowledge in the political process.

Regulation and reflexivity in a collaborative environment are present in the three underlying goals of the construction and dissemination of indicators in ESCXEL network identified by Santos (2014): i) to add new ways to analyse and present the results on national exams and their evolution, in order to "inform the perception, *problematization*, *discussion* and action orientations" of educational local actors (pp. 152-153 [our emphasis]); ii) to contribute to a collaborative and *benchmarking culture* among network members; iii) to stimulate a *self-evaluation culture* and the presentation of results to external evaluations.

In fact, knowledge produced and disseminated in ESCXEL network activities can induce self-evaluation and reflexivity processes among local actors on their educational practices and results, similarly to what happens with some external evaluation tools (Afonso & Costa, 2011; Ozga, 2008). The reflection stimulated within schools and municipal agencies by reports or by presentations in seminars contributes to the creation of new knowledge, combining codified knowledge drawn from ESCXEL activities with tacit local knowledge (Mangez, 2011). Thereby, knowledge is contextualized in social interactions within schools, which are crucial for the reconstruction of meanings and production of new meanings (Afonso & Costa, 2011).

Most of the persons interviewed in an exploratory work (Batista & Gonçalves, 2015) mentioned the use of ESCXEL reports and presentations in seminars to discuss results and instigate reflection within schools. Based upon new knowledge, these reflections contribute to the definition of problems or action plans. These are two crucial moments in the political process where knowledge is used as resource, defined by Delvaux (2009) as "problematization" and "preconization". In the following statements, we can see how reflections induced by ESCXEL network's activities can lead to the definition of new problems (generally in the form of issues to be addressed by school goals) or changes in educational or organizational practices:

ESCXEL report [...] is one of the tools which also serve to set goals and guidelines (Principal School 1).

[ESCXEL results reports] give a widening perspective because they inform us of our school's outlook. And that is important to debate the future, to make a plan and establish strategies and benchmarks for the future (Principal School 2).

We have been changing the structure of our Educational Project to ensure that all strategies and benchmarks can be evaluated with the proper indicators according to what we learned in the ESCXEL training course (Department Coordinator School 1).

All our teachers that attended [Municipality X] Seminar brought a considerable amount of ideas that were debated and some of them implemented in our school (Principal School 3).

I should tell you that we also have been improving the information we put on MISI [the digital platform which stores data on students' socioeconomic characterization]. Until two years ago, the school's administrative services uploaded data on MISI. End of story. I never bothered to go and check. And then [when ESCXEL distributed analyses based on MISI data] I noticed that there was a lot of wrong data [...]. In this issue too, it forced us to have a better look at our data [...] and now I insert the data into MISI myself (Principal School 1).

School networks are important structures that can bring about changes in education: they create the conditions for knowledge creation and sharing by and among schools (Veugelers & O'Hair, 2005) and also other actors, as it is the case in the ESCXEL network. Through ongoing discussion and reflexion, both across and within schools in networks, new ideas, tools and practices are created, in a process where the initial knowledge is substantially transformed (Veugelers & O'Hair, 2005), combining different sources and types of knowledge (Delvaux, 2009).

However, as stated by Katz, Earl and Jaafar (2009), simple connections are not enough to create significant change in practice: effective networks are learning communities, "groups of schools working together in intentional ways to enhance the quality of professional learning and to strengthen capacity for continuous improvement, in the service of enhanced student learning" (p.9). Upon ideas, practices and information from the network, actors in schools are aware of new challenges and initiate self-reflexion, which also can contribute to the development of a shared vision of education (Veugelers & O'Hair, 2005) – especially if the new knowledge produced locally is based on a professional learning community, where it is shared and helps to elaborate collective know-how in order to improve students' performance (Normand & Derouet, 2011). According to Katz, Earl and Jaafar (2009), participation in school networks fosters the development of professional learning communities in schools, by linking them to other school-based groups and allowing new and diversified circuits of knowledge creation and sharing to emerge; once new knowledge is created and shared within the school, it is likely to influence educational practices.

Our description of ESCXEL's main activities raises some important questions on the role of knowledge in education policy, in the context of new modes of regulation in educational systems. We were able to identify how, in a school network, knowledge can be used simultaneously as a regulation tool and as a resource for action in schools. However, mobilization of knowledge may differ according to schools (Batista & Gonçalves, 2015) and there is a need to explore further whether and how self-evaluation and reflexivity processes in ESCXEL network do lead to effective changes in educational practices and local institutionalization of know-how to improve students and school's results, thus setting a new topic in our evolving research agenda.

## References

- Afonso, N., & Costa, E. (2011). A avaliação externa das escolas: Um instrumento de regulação baseado no conhecimento. In J. Barroso & N. Afonso (Eds.), *Políticas educativas: Mobilização de conhecimento e modos de regulação* (pp.155-189). Vila Nova de Gaia: Fundação Manuel Leão.
- Barroso, J. (2005). O Estado, a educação e a regulação das políticas públicas. *Educação & Sociedade*, 26(92), 725-751.
- Barroso, J., & Afonso, N. (2011). Introdução. In J. Barroso & N. Afonso (Eds.), *Políticas educativas: Mobilização de conhecimento e modos de regulação* (pp. 11-25). Vila Nova de Gaia: Fundação Manuel Leão.
- Batista, S., Franco, L., & Santos, R. (2014). Indicadores sintéticos de contexto socioeconómico dos resultados escolares em exames nacionais nos concelhos de Portugal Continental (2009-2014), *Working Papers CES-NOVA, 1*. Retrieved from <http://cesnova.fcsh.unl.pt/cms/files/publicacoes/PUB54c293671d3ce.pdf>
- Batista, S., & Gonçalves, E. (2015, September). *School Networks and Knowledge Mobilisation: exploratory study in ESCXEL Project*. Paper presented at ECER 2015, Budapest. Abstract retrieved from <http://www.eera-ecer.de/ecer-programmes/conference/20/contribution/34798/>
- Delvaux, B. (2009). Qual é o papel do conhecimento na acção pública? *Educação & Sociedade*, 30(109), 959-985. <http://dx.doi.org/10.1590/S0101-73302009000400003>
- Durant, W. (2006 [1926]). *The story of Philosophy. The lives and opinions of the world's greatest philosophers from Plato to John Dewey* (2<sup>nd</sup> ed.). New York, NY: Simon&Schuster.
- Gonçalves, E. (2015, October). A democracia participada das famílias no interior das escolas. In Sá, V., Torres, L., Silva, G., & Silva, D. (Eds.), *II Colóquio Internacional de Ciências Sociais de Educação. O governo das escolas: Atores, Políticas e Práticas*, Braga: Universidade do Minho, De Facto Editores. Retrieved from [http://webs.ie.uminho.pt/iicicse/files/ATAS-IICICSE\\_CS2015.pdf](http://webs.ie.uminho.pt/iicicse/files/ATAS-IICICSE_CS2015.pdf)
- Gonçalves, E. Cunha, S., & Batista, S. (2011, November). ESCXEL Project – Schools of Excellence Network. A pioneer educational project from Portugal. Proceedings from ICERI2011: *4th International Conference of Education, Research and Innovation*. Madrid: IATED. Retrieved from <http://library.iated.org/publications/ICERI2011>
- Justino, D., & Batista, S. (2013). Redes de escolas e modos de regulação do sistema educativo. *Educação, Temas e Problemas*. [A escola em análise: olhares sociopolíticos e organizacionais], 6(12-13), 41-60.
- Katz, S., Earl, L., & Jaafar, S. B. (2009). *Building and connecting learning communities. The power of networks for school improvement*. Thousand Oaks, CA: Corwin Press.
- Mangez, É. (2011). Economia, política e regimes do conhecimento. In Barroso, J. & Afonso, N. (Eds.), *Políticas educativas: Mobilização de conhecimento e modos de regulação* (pp.191-222). Vila Nova de Gaia: Fundação Manuel Leão.
- Maroy, C. (2013). Politiques et outils de «l'école de la performance»: accountability, régulation par les résultats et pilotage. In C. Maroy (Ed.), *L'école à l'épreuve de la performance* (pp. 13-31). Brussels: De Boeck.
- Normand, R., & Derouet, J.-L. (2011). Évaluation, développement professionnel et organisation scolaire. *Revue Française de Pédagogie*, 174. Retrieved from <http://rfp.revues.org/2899>
- Ozga, J. (2009). Governing education through data in England: from regulation to self-evaluation. *Journal of Education Policy*, 24(2), 149-162. <http://dx.doi.org/10.1080/02680930902733121>
- Pons, X., & Van Zanten, A. (2007, June). *Knowledge circulation, regulation and governance*. Research Report Know&Pol. Retrieved from [http://knowandpol.eu/IMG/pdf/lr.tr.pons\\_vanzanten.eng.pdf](http://knowandpol.eu/IMG/pdf/lr.tr.pons_vanzanten.eng.pdf)
- Santos, R. (2014). Monitorização e *benchmarking* de resultados escolares (exames e provas de aferição) na Rede ESCXEL. In CNE (Ed.), *Avaliação externa e qualidade das aprendizagens* (pp. 152-166). Lisbon: Conselho Nacional de Educação. Retrieved from <http://www.cnedu.pt/publicacoes/seminarios-e-coloquios/1074-avaliacao-externa-das-escolas>
- Veugelers, W., & O'Hair, M. J. (Eds.). (2005). *Network Learning for Educational Change*. Maidenhead: Open University Press.