Case Study

Portugal

http://keyconet.eun.org
KeyCoNet (2012 – 2014) is a European policy network focused on identifying and analyzing initiatives on the implementation of key competences in primary and secondary school education.

On the basis of the evidence collected through literature reviews, case studies, peer learning visits, country overviews, videos and exchanges between network members, the project’s final objective is to produce recommendations for policy and practice regarding the enablers and obstacles to a holistic implementation of key competence development.

Among KeyCoNet’s current 18 partners in 10 countries (Austria, Belgium, Estonia, Finland, France, Ireland, Norway, Portugal, Spain and Sweden), are Ministries of Education/related agencies, universities/research institutes, European organizations, and practice related partners. KeyCoNet also has a growing number of associate members from other countries and stakeholder groups, steadily increasing our network’s scope and influence.
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Part of a series
This case study is part of a series of case studies being produced by KeyCoNet, to highlight various initiatives concerning key competence development, taking place across Europe. Each case study analyzes the initiative’s implementation strategies in depth, and will feed into the network’s recommendations for policy and practice on how to implement a key competence approach in schools most effectively.

How and why was this case selected?
Each year the KeyCoNet network identifies initiatives concerning key competence development across Europe, and a case note is produced providing basic information about each one. Following this, network partners participate in an online selection according to pre-established criteria, as well as an in-depth face-to-face discussion, in order to select the most interesting initiatives to develop into case studies.

The Portuguese case is a national initiative devoted to developing digital competence, and more specifically computational thinking skills, through training teachers to use the programming tool Scratch as a teaching and learning tool for their students. It was considered of particular interest to the network as it was designed as a systemic initiative from the start, with a strong focus on in-service teacher training and the development of a network of certified teacher trainers to support the implementation of EduScratch activities. The development of a large teacher community of practice offering online and face-to-face support to carry out EduScratch projects in the classroom has been a significant enabler in the success of this initiative.

Which methodology has been used?
Case studies are the main tool used by the network to probe beneath the surface of each selected initiative and provide a rich context for understanding the implementation issues involved. The initiatives selected by the network differ in many ways, according to the nature of the key competences addressed, the implementation process used, the number of students and teachers directly concerned, the type and number of actors involved, and the duration and stage of development etc. A multiple-case study design, whereby each initiative generates its own case study, but uses one single prism for a common analysis, was therefore chosen. This method makes it possible to explore diversity, as well as the enablers and obstacles to the initiative’s implementation, as perceived by the initiators and stakeholders interviewed. Moreover, through a multiple-case study design it is possible to identify choices, strategies, characteristics, situations or contexts leading to success or failure in a recurrent manner. This will particularly contribute to fuelling the set of recommendations for policy and practice at institutional, local, regional, national and European level, for the effective implementation of key competences in school education.

Each case study included interviews with the initiative’s coordinators and stakeholders, as well as desk research. In some cases, where considered feasible and fruitful, focus groups were also organized. Two people were interviewed for this case study: the coordinator of the ICT Competence Centre, also responsible for the coordination of the EduScratch initiative, and the professor of the Polytechnic Institute responsible for accompanying and supporting the project. These individuals were chosen as they have been involved in this project from the beginning, overseeing its implementation and development, and because they represent key partners of the initiative.
# BASIC INFORMATION

| **Country:** | Portugal |
| **Title of initiative:** | EduScratch |
| **Coordinator/Organization:** |
| · Miguel Figueiredo and Teresa Marques |
| · School of Education |
| · Setúbal Polytechnic Institute ICT Competence Centre |

**Key competences addressed:**

Main focus:

[PT] Competência digital [EN] Digital competence;

Secondary focus:

[PT] Competência matemática e competências básicas em ciências e tecnologia [EN] Mathematical Competence and Basic Competence in Science and Technology

**Type of initiative and channels used for implementation** (e.g. curriculum reform introduced through legislation etc.)

This initiative aims to promote the educational use of the programming language Scratch by supporting, teaching and sharing good practice among members of the Portuguese educational community.

It contributes to the curricular integration of ICT as well as giving context to the implementation of ICT curricular targets in grades 7 and 8 (ages 12-13).

The initiative has been implemented by the Directorate General for Education in partnership with the Portuguese Ministry of Education and Science and one of its ICT Competence Centres.

**Partners:**

· Directorate General of Education (DGE)  
· Ministry of Education and Science  
· School of Education: Setúbal Polytechnic Institute  
· Sapo Portal (Portugal Telecom)

**Scope:**

(teacher/student/school level; local/regional/national)

Teachers and students  
National  
School support at a regional level

**Learning context:**

(formal or non-formal)

Mainly formal (although some of the activities occur in non-formal contexts within the school)

**School education levels:**

(Primary, lower secondary, upper secondary)

Pre-school to lower secondary level.

**Target groups:**

All curriculum areas and all students (special needs students, including overachievers)

**Time frame:**

(start and end date)

September 2010 – on-going

**Relevant links:**

· ICT Competence Centre website: http://projectos.ese.ips.pt/ctic/  
· Facebook – EduScratch: https://www.facebook.com/eduscratch  
· Twitter-Eduscraprtch: https://twitter.com/eduscratch  
· ERTE-DGE website: http://www.erte.dge.mec.pt/  
· SAPO Scratch website: http://kids.sapo.pt/scratch/
**SUMMARY**

The EduScratch initiative was implemented by the Directorate General for Education in partnership with the Portuguese Ministry of Education and Science and one of its ICT Competence Centres. The initiative aims to contribute to the creation and development of a community of practice for teachers around the educational use of Scratch, an intuitive programming tool. This tool allows the development of computational thinking and has proven to have huge potential in developing different types of skills (digital and also subject-specific) in students.

Work on this initiative coincides with curriculum reforms in the Portuguese education system introduced in August 2012. The new curriculum requires the existence of an ICT subject in grades 7 and 8 that includes a target dedicated to the exploration of computational environments. Work carried out within the EduScratch initiative also counts towards corresponding to these new curriculum demands.

**INTRODUCTION**

The EduScratch initiative aims to contribute to the creation and development of a teachers’ community of practice on the educational use of an intuitive programming tool. This tool allows the development of computational thinking and has proven to have huge potential in developing different types of skills (digital and subject-relate) in students.

EduScratch is an initiative aimed at promoting the educational use of a programming language – Scratch – by supporting, training and sharing good practices among the Portuguese educational community. It has been successfully implemented in grades K-12, with a naturally increasing level of complexity. Moreover, it contributes to the curricular integration of ICT, as well as giving context to the implementation of ICT curricular goals in grades 7 and 8. This initiative has been implemented through a partnership between the Directorate-General for Education of the Portuguese Ministry of Education and Science and one of its ICT Competence Centres.

Even though its natural focus is on ICT competences, EduScratch has also had a diverse impact on a variety of other key competences, depending on the different implementation context. For example, when implemented within the context of mathematics classes it has clearly contributed to the development of mathematics competences; when used in the context of foreign language classes it has had an impact on the development of competences in this area. Furthermore, given the innovative nature of EduScratch projects, the initiative has also brought about a clear development of other key competences: e.g. communication skills when participants are required to share, discuss, clarify and present their projects; learning to learn competences due to the highly student-centred approach; and also initiative and entrepreneurship, since students are encouraged to adapt and customise
their own projects. Therefore, although the main focus of EduScratch
is on the development of digital competences, we have found that all
other key competences have also been supported, to varying degrees,
depending on the contextual factors of implementation.

Since its introduction, the
popularity of EduScratch has
grown steadily. In 2009-10, the
initiative began with in-service
training workshops across the
country. This approach has de-
veloped a network of certified
trainers in other ICT Compe-
tence Centres, contributing to a
growing impact of the initiative. From an initial development based
in the Setubal ICT Competence Centre, there are now four centres
(Minho, Coimbra, Santarem and Évora) that are actively engaged
in dissemination and training activities. However, the impact at
classroom level has not yet been clearly quantified. Project leaders
have developed an implicit notion of the impact of the initiative
through levels of participation in national conferences and in Ed-
their projects (with an exponential growth in the number of par-
ticipants), and also from the growing number of student projects
shared via the EduScratch online portal.

1. CONTEXTUAL INFLUENCE

Which contextual factors have been perceived as enablers to the
implementation of the initiative, and why?

One of the most important enablers for the introduction of Edu-
Scratch has been the official recognition of digital competences
in the curriculum, and also the official inclusion of Scratch as a
recommended language for the development of this competence.

Which contextual factors have been perceived as obstacles to
the implementation of the initiative, and why?

There have also been some contextual obstacles, namely the recent
curricular revision that greatly reduced the presence of ICT in the
curriculum, as well as the time allotted to project work, during
which EduScratch was often introduced. Moreover, there is clear
necessity for further human resources to be allocated to the project
in order to sustain and expand this initiative.
2. SUBSTANCE RELATED ISSUES

Which substance related issues have been the most difficult ones to fix when deciding on the content of the initiative, and why?

The main official focus of this initiative is the development of digital competence, present at various levels throughout the curriculum. Activities have therefore been developed to work with teachers and students from grades K-12. In particular, the main efforts to spread this initiative have been targeted at the development of in-service training for teachers at all levels and in all subject areas. This training has taken a variety of formats, ranging from two- to three-hour dissemination presentations, to 15-hour officially-certified workshops. These longer workshops have been the main format adopted and are where the greatest efforts have been channelled. The workshops have adopted an extremely interactive model in which, after a short presentation of the Scratch software, participating teachers are prompted to actively engage with the programme in order to develop their competences. Moreover, participating teachers are required to develop classroom projects with their students that are supported and discussed throughout the workshop, and then to present their projects and student products in the final workshop sessions. Furthermore, there has also been an effort to customise the in-service training workshops for different grade levels and subject areas whenever possible.

Nevertheless, the programme coordinators point out the necessity for more applied research into the development and transference of key competences into traditional curricular areas through the use of EduScratch. Even though the impact is clear from the presented student projects (both in traditional conferences and on the online portal), and from teachers’ reports on students’ accomplishments and increased motivation in a variety of areas (even outside of school), there is a recognition for the need for formal research in the area in order to more clearly explore this intended result.
3. PARTNERSHIP RELATED ISSUES

Which key aspects should be taken into consideration when defining the partnership?

The main partner for the development of this project has been the Ministry of Education, through the official support of EduScratch in the form of human resources (one of the project coordinators is provided and paid by the ministry) and also technical support for the project’s online portal. The partnership formed with the private internet service provider SAPO has been important for the development of the project’s online presence, through resource-sharing via the SAPO web portal, and more recently with the MEO cable TV (Channel 151232). Finally, the establishment of partnerships with other ICT Competence Centres has also been a decisive factor for the network development and coverage of the project, which is currently present throughout Portugal.

4. STRATEGY RELATED ISSUES

Which aspects of the strategy implemented for the initiative have proved to be particularly effective, and why?

The focus on in-service teacher training has been an active investment to empower a large number of teachers in order to reach many student classrooms. However, there have also been two decisive factors supporting the development of this project from two other sources. Firstly; the development of a large community of practice of teachers who support each other (online and face-to-face) and who help their colleagues with the implementation of Scratch projects and resources. Secondly; the emergence of a number of highly-skilled volunteers (mostly retirees) who offer their time and expertise to support teachers and students throughout their Scratch projects (both online and in the classrooms).
Which aspects of the strategy implemented for the initiative have proved to be most problematic, and why?

One particular obstacle in this area has been the erratic functioning of the EduScratch portal, crucial for the maintenance of the community of practitioners, and which has recently been targeted by spam attacks that led the ministry systems administration to temporarily reduce the portal’s interactive resources.

5. Mainstreaming Related Issues

If the key competence initiative aims/aimed at mainstreaming, what are/have been the major obstacles encountered to generalise it?

The goal of this initiative was the mainstreaming of the Scratch tool throughout the Portuguese K-12 educational system. However, shifting government policy has been one of the major obstacles encountered by the project in the process of mainstreaming. There has been a recent (2012) curricular reform movement that leans towards a more ‘focused’ curriculum, in which transversal areas have been reduced while mathematics, science, and Portuguese have been reinforced. This approach has led to a reduced investment in transversal skills, and even in the reinforced areas of mathematics, science, and Portuguese, with a move towards a much higher focus on traditional content and high-stakes testing that has left teachers with the feeling that they have fewer opportunities to engage in these curriculum-enrichment activities.

Moreover, the reduced size of the official team coordinating the project inhibits its possible outreach and support to a larger network of participating teachers. This obstacle has been partially overcome through the development of the capabilities of the ICT Competence Centres to support EduScratch-related activities throughout the country. Nevertheless, it would be highly beneficial to finance a larger coordinating team that is exclusively dedicated to this project (the current team is also responsible for other ICT-related projects).

Furthermore, the diversity in the levels of school and student resources is often an obstacle to ICT-related projects in general, and to EduScratch in particular. In fact, while some schools are already very well equipped, most schools do not have enough functioning resources.
6. SYSTEMIC ASPECTS

To which extent has the initiative been designed as a systemic one from the starting point, i.e. introducing changes in several areas related to the student curriculum [such as teacher training, assessment, school organisation, etc.]?

The initiative has been designed as systemic from the very beginning, particularly given its focus on teacher training and on the development of a network of teacher trainers to support EduScratch activities.

What have been the enablers encountered during the implementation because of the systemic aspect of the initiative?

Because of the systemic aspect of the initiative, and due to the fact that teachers in Portugal need to complete a minimum number of in-service training hours per year, the programme developed certified workshops so that they could be counted towards teachers’ required training hours. Moreover, these in-service workshops were managed by certified instructors with both general training experience as well as knowledge of the EduScratch initiative. There has also been an effort to provide direct support to schools (teachers and students), not only through an active community of practice for Scratch users, but also through the projects developed at the schools, in order to showcase successful experiences and to promote students supporting other students and teachers.

7. EVALUATION RELATED ISSUES

In case a simultaneous/real time evaluation process has been part of the initiative:

What have been the obstacles to implement it, and why?

No formal large-scale evaluation of this initiative has been attempted so far. There is a formal evaluation of the teachers who participate in the workshops, and there is an informal evaluation of the initiative in order to assess the national coverage, based on the number of training workshops, the student projects presented on the national conferences (e.g. EduScratch day), and on the number of resources made available and shared on the online portal.

Nevertheless, the programme coordinators recognise the need to attempt to establish a more systematic and formal evaluation process, in order to better assess the project’s impact and coverage.

Figure 5: Scratch Day 2013
8. NEXT STEPS

What is planned next for the initiative?

The coordinators’ main concerns for the next steps of the project are mainly regarding its sustainability and evaluation. Concerns for the project’s sustainability focus on assuring an on-going investment in teacher training, with the aim of enabling the project’s community of practitioners to become more autonomous and self-driven, with the establishment of medium- and long-term goals. Also crucial for this will be an increase in the number of staff involved in the implementation of the project and a more active engagement of the ICT Competence Centres. Furthermore, there is also a clear concern regarding the creation of a monitoring and evaluation process in order to adequately accompany the project’s development and gauge its impact on students’ learning and their development of a wide range of key competences.
European Schoolnet is the coordinator of the KeyCoNet Project.

European Schoolnet is the network of 30 European Ministries of Education, based in Brussels. As a not-for-profit organisation, we aim to bring innovation in teaching and learning to our key stakeholders: Ministries of Education, schools, teachers, researchers, and industry partners.

Since its founding in 1997, European Schoolnet has used its links with education ministries to help schools make effective use of educational technologies, equipping both teachers and pupils with the skills to achieve in the knowledge society.

In particular, European Schoolnet pledges to:

• Support schools in achieving effective use of ICT in teaching and learning
• Improve and raise the quality of education in Europe
• Promote the European dimension in education

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