



Case studies

16. Gomes Eanes de Azurara School Cluster Group, Mangualde, Viseu, Portugal

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CONTENTS

1. Context of the school	3
2. Example of practice	4
3. Impact, barriers and enablers	5
3.1 School.....	5
ICT development plan, implementation strategy, organisational changes and attitudes	5
Resourcing.....	6
The curriculum and ICT	7
Assessment of ICT and ICT for assessment	7
Organisation of support.....	8
3.2 Teachers	8
ICT as a tool for communication and collaboration	8
ICT as a tool to improve the quality and efficiency of planning and administration	9
The pedagogical role of ICT to improve learning and teaching.....	9
ICT skills	9
Participation, motivation, confidence and performance.....	10
3.3 Learners.....	10
ICT skills	10
Motivation, participation and confidence	11
Participation in all aspects of school life: academic, social, personal.....	12
4. References	12

This is one of 25 case studies produced for STEPS, the Study of the impact of technology in primary schools, to illustrate the impact of ICT, on schools, teachers and learners, and to highlight barriers and enablers to its effective use in the school. Further information can be found at <http://steps.eun.org>.



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1. CONTEXT OF THE SCHOOL



The Gomes Eanes de Azurara School Cluster Group comprises 13 pre-schools (15 classes), 13 primary schools (32 classes), and the main secondary school: a total of about 1,400 enrolled pupils.

The school cluster group is located in the municipality of Mangualde, a slightly sloping plateau region in inland central Portugal, made up of 18 parishes, with an area of 220km². It is linked by motorway to Viseu, the district seat, about 15km away.

The municipality has about 21,000 inhabitants (2001 census), 8,611 of who are economically active particularly in industrial and traditional activities, such as unskilled agricultural, industrial, commercial and service work. The tertiary sector represents about 48.8 per cent of the active population, followed by the secondary sector with about 44.8 per cent, focused on capital goods industries – light metalworking, timber, granite and timber extraction and processing, textiles and apparel, and car assembly.

The predominant level of schooling in the municipality is primary education, representing more than the sum of the other levels of schooling. In 2001, the rate of illiteracy was 11 per cent (in people over ten years of age), that of early school leaving was 1.7 per cent, and that of school retention was 12 per cent.

About 43 per cent of post-compulsory schooling pupils are subsidised. As for the academic qualifications of parents, most have completed the 6th grade of compulsory schooling. Most parents work in the secondary sector, but most mothers are either tertiary sector unskilled workers or domestic workers. Over half of the pupils have a computer at home and about a third have an internet connection.

The primary school classrooms, where the activities described in this report take place, are equipped with a computer, a printer and internet connection, a video projector and an interactive whiteboard (IWB).

The cluster group's main school is equipped with a wireless system and includes two ICT classrooms. Computer equipment is also available in classrooms, support rooms, the library, the counselling office, the staff room, the form teachers' room, and the administrative services. The school's administrative and social work services are also fully computerised.

The cluster group has its own servers to manage the network and to host the school's portal, the community's email, and the Moodle learning platform.

2. EXAMPLE OF PRACTICE

As a result of a partnership between a teacher training centre and a publishing house (CFAE from Penalva and Azurara and Areal Editores), the project 'Inovar com Q' (Innovate with IWBs) is taking place in this cluster group. The project aims to support interaction between pupils and IWBs, using existing resources and developing new ones to support syllabus content. A designated trainer supports those teachers involved in the use of the IWB, and acts as a point of contact for all parties involved with the project. The project also has an online support portal on which materials and resources used or produced are posted, along with logbooks and examples of pupils' work.

A key feature of the project over the last three years has been regular training and weekly discussions to allow the sharing of resources and methodologies. This follows compulsory ICT training focusing on Moodle and email. This has enabled the teachers involved to master the use of the IWBs, and develop their confidence. Many are now happy to train their colleagues and show their work publicly at educational meetings. The project also aimed to reduce the isolation of primary school teachers in terms of their training, providing opportunities for them to review and update their teaching practice.

The success of the project suggests that longer-term use of ICT resources in the classroom would be beneficial. The project has had a positive impact on pupil motivation for, concentration on, and commitment to the subject of the lesson, as their constant willingness to carry out or propose tasks using the IWB has demonstrated. Internet access for additional research has allowed pupils to further develop their technical skills. School-based work is not systematically followed up outside school, however, as not all pupils have access to the necessary resources.

The implementation of the project was observed in two classes (of 24 and 16 pupils, between 8 and 10 years of age), in the curriculum areas of Portuguese language, mathematics and environmental studies. The lessons involved the following teaching and learning approaches:

- Practising – applied theory and its evaluation (acquisition and performance of practical skills).



- Exploring – personal exploration (knowledge acquisition, build-up and formation).
- Debating – learning through social interaction, collaborative, stimulating discussions.
- Creating – to create something new, to produce work (build, create and produce).
- Learning to learn – self-reflection.

The ICT resources used were the IWB, a video projector, the computer and internet access.

The impact of the project on the pupils was positive in many aspects, including: school results; understanding of the topics studied; communication in the mother tongue; ability to learn to learn; interpersonal, intercultural and social skills; motivation for, attitude in, and commitment to learning; and behaviour and attendance.

The impact of ICT was particularly positive in mathematics and science, and in the development of technology and digital skills (ICT skills).

ICT was deemed to have a positive impact on teachers in terms of motivation, commitment and confidence and the identification of the learner's progress and needs. It was deemed to be very positive in terms of teaching skills and practice, ICT skills, planning and preparation, and methodology and resource sharing.

3. IMPACT, BARRIERS AND ENABLERS

3.1 SCHOOL

ICT DEVELOPMENT PLAN, IMPLEMENTATION STRATEGY, ORGANISATIONAL CHANGES AND ATTITUDES

o **Impacts, barriers and enablers**

- o The 'Inovar com QI' project was not initiated by the Ministry of Education, but has subsequently influenced government decisions due to the good results the project has achieved. This has stimulated central and local authorities to invest in this type of ICT tool. This project has not arisen from any national policy but rather from the vision of CFAE, as the project's managing body, of what the priority tools would be to integrate ICT into the curriculum. This was combined with a national ICT training policy for primary school teachers, which came to fruition in the form of a basic training package enabled by the Ministry.
- o CFAE is itself a member of a national network which aims to respond to the training needs of schools. The role of developing educational projects is not specifically within its remit.
- o The Ministry of Education made space available on a nationwide platform to publish and disseminate educational resources for IWBs, but the co-ordinators of this project were not informed of this. A partner company took the initiative to

contact the Ministry of Education so that the resources produced by the project could subsequently be included.

- The participants in the project have disseminated findings at various events organised by schools, universities and centres of competence, but never at an event initiated by the Ministry.
- The actual supply of IWBs to schools was not typical for this type of project. Training and follow-up by the Ministry of Education to teachers of those schools which received IWBs was extremely rare, sporadic and informal.
- Teachers are not explicitly aware of the national strategies for implementing ICT in educational practice.
- As participants in the project, teachers were given weekly training and opportunities to network for the first two years. However, it has proved difficult to maintain this regularity in the current academic year as timetables have not been organised to take this training need into account.
- Teachers consider the IWBs to be an extremely useful and productive tool for their work. IWBs have greatly contributed to changes in teaching methods, improvements in planning and an increase in commitment, motivation and concentration levels on the part of the pupils.



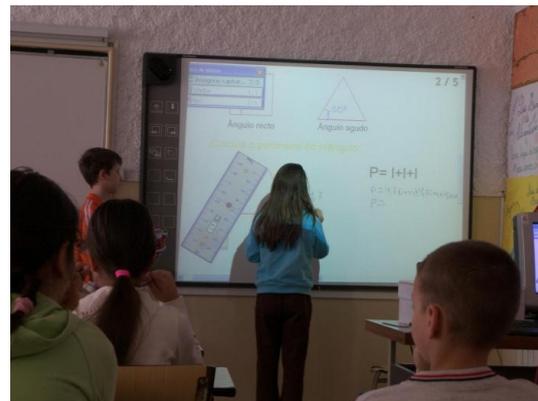
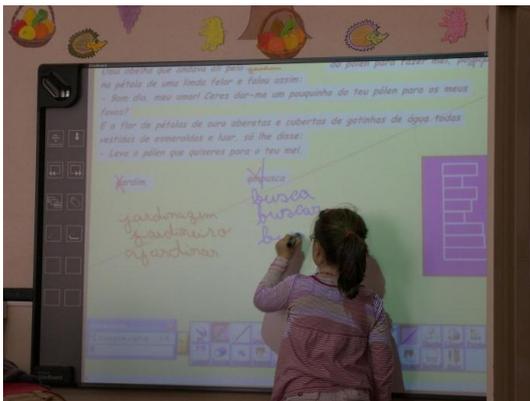
RESOURCING

- **Impacts, barriers and enablers**
 - The project provided an IWB, multimedia projector and tablets to each classroom/teacher. The remaining equipment (PCs) has been provided by the Ministry of Education and/or the City Council.
 - The partner company is also funding a trainer who monitors the teachers involved in the use of IWBs, acting as the main point of contact between all participants in the project, and between participants and the coordinating body (CFAE).
 - The resources provided by the project meet the schools' needs since they combine existing equipment (such as an internet-connected computers provided by previous national projects), with new tools (IWBs). The IWB complements existing resources in supporting the integration of ICT into the curriculum.

- Within individual schools, teachers have relied on the help of local authorities (parish councils) and have been meeting expenses for peripherals and consumables personally.
- Educational resources and learning objects have been gathered by teachers from among freely available online resources, and shared by all at regular meetings. They are supported in this respect by the trainer.
- CFAE also makes some resources available for purchase, as detailed in an online catalogue. The catalogue also includes resources available from the school libraries/resource centres of all the schools associated with the CFAE.
- Specific resources are available to support pupils with special educational needs.

THE CURRICULUM AND ICT

- **Impacts and enablers**
 - Within the project, IWBs are used to support teaching and learning processes in all areas of the curriculum.



- The project has aimed to adapt existing educational activities using ICT tools, and specifically IWBs, in line with the National Curriculum which promotes increased integration of ICT.
- Every teacher, having received initial training, adapts the use of IWBs in the classroom to the requirements of the National Curriculum. The focus is very much on emerging practice rather than relying on existing practices.

ASSESSMENT OF ICT AND ICT FOR ASSESSMENT

- **Impacts, barriers and enablers**
 - IWBs are used for assessment activities, particularly using voting systems, which giving pupils the opportunity to analyse the results themselves.

- Assessment methodologies in the National Curriculum do not provide opportunities to make assessments using ICT, nor to assess ICT skills themselves.
- ICT is used to support and complement assessment, but is not seen as a formal assessment tool.
- Teaching work with IWBs is monitored by participants of the project, which enables the assessment of the use of ICT from the perspective of changes in teaching practice.
- The role of ICT in the commitment, motivation and end products of the pupils is not explicitly assessed, although it is clearly visible. Pupils often ask to use ICT and suggest activities that rely on it.
- The IWB is also used to provide specific activities for pupils with special educational needs.

ORGANISATION OF SUPPORT

- **Impacts, barriers and enablers**
 - Technical support is provided by an educational assistant in each cluster group, who has received training from the CFAE.
 - Core software is supported, but it is up to individual teachers to maintain the other software they use.
 - Educational resources and learning objects are gathered by teachers online from available freeware.

3.2 TEACHERS

ICT AS A TOOL FOR COMMUNICATION AND COLLABORATION

- **Impacts, barriers and enablers**
 - Communication and collaboration rely mainly on the project portal, the cluster group, each school's blog, and email.
 - Teachers participating in the project are committed to posting their 'logbooks' and respective materials online. This allows them to share their practice with other teachers involved in the project, and provides opportunities to discuss them together.
 - The resources used in the project are integrated into the learning platforms of the cluster group.



- Teachers communicate and work collaboratively through email and forums; they do not rely on learning platforms (such as Moodle and virtual stages) due to lack of training in their use.

ICT AS A TOOL TO IMPROVE THE QUALITY AND EFFICIENCY OF PLANNING AND ADMINISTRATION

- **Barriers**

- The IWB is not used for administration purposes in this project.

THE PEDAGOGICAL ROLE OF ICT TO IMPROVE LEARNING AND TEACHING

- **Impacts**

- The use of IWBs has changed educational practice dramatically:
 - It greatly increases pupils' concentration levels.
 - It enables the pupils themselves to detect errors and shortcomings.
 - The teacher's focus on the planning of learning activities is much more intense.
 - It allows activities to be diversified.
 - It provides an opportunity to improvise, allowing spontaneous learning.
 - It provides a stimulus for pupils with special educational needs, and is an enabler for their work.
 - It increases pupil participation and dynamics in the classroom.

ICT SKILLS

- **Impacts, barriers and enablers**

- Since the start of the project, teachers have received weekly training and have also relied on peer support. Support for their professional development is provided by CFAE, although there are currently limitations as a result of timetable organisation. Besides this, they have only had ICT training on their own initiative, organised by unions or teachers' associations. As a result, they feel that the ICT training received has not been sufficient to meet all their needs.
- Teachers consider that there is too much overlap in training provision in the various areas, which reduces their availability to devote themselves to each one. Additionally, the organisation of their timetables and the added tasks allocated to them does not always respect the legal limitations of their role, and does not allow them to attend training in the way they would like to.

- Teachers would prefer a module-based training model which would be more flexible in terms of timetabling, and allow them to progress at a personal pace. From the experience gained, training aimed at developing ICT educational skills should be provided as a training workshop or as accredited informal training.
- Teachers are using different versions of IWB software, and have not yet explored all the functionality on offer. To date their use has been very much a participatory process with the pupils.
- Teachers have also experimented with the using a commercial digital educational resource, 'Virtual School', but have found it to be too complex to use in their daily practice.
- There is growing awareness of the potential offered by the IWB and its software, as evidenced by the shared experiences of the teachers involved. This highlights the importance for teachers to continue to have opportunities to co-operate in the future.

PARTICIPATION, MOTIVATION, CONFIDENCE AND PERFORMANCE

- **Impacts, barriers and enablers**

- Teachers are motivated to use IWBs in their educational practice. They feel that they add value to classroom activities, and enhance pupils' commitment.
- Teachers feel confident using IWBs, but are aware that their skills still need further development. The use of IWBs has also highlighted the importance of other ICT equipment and software in their teaching. However, technical issues such as maintenance of video projectors, or installing and updating software, is a challenge for them.
- Negative aspects of participating in the project include work overload, particularly with regard to the allocation of duties and the organisation of timetables.

3.3 LEARNERS

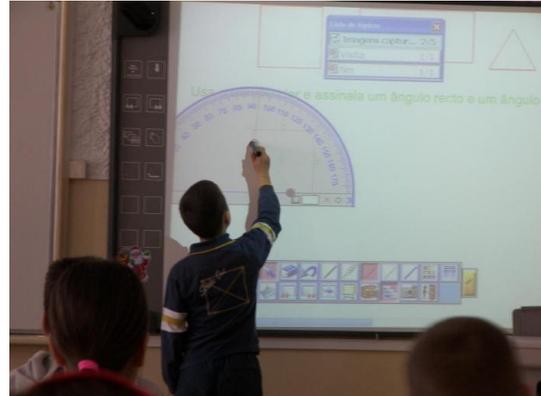
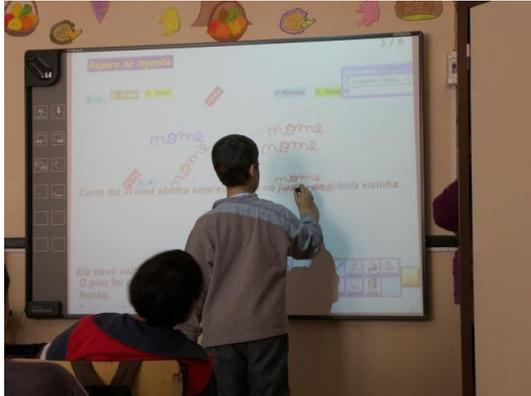
ICT SKILLS

- **Impacts, barriers and enablers**

- Teachers have not felt the need to assess the prior ICT skills of pupils, since social backgrounds suggest that children generally have had little previous exposure to ICT.
- Pupils' attitudes towards ICT are largely dependent on how familiar they are with it within their family set-ups, which are rather varied. The provision of laptops to primary school pupils (Magalhães) has minimised these differences, but has brought others to the fore, particularly that there are differing levels of investment

by families in supporting their children's relationship with technology. A large number of homes no longer have a permanent internet connection and, in some families, the child is not the main user of the computer.

- At school, pupils use ICT independently and with pleasure, taking advantage of every opportunity to use ICT resources.



- Pupils do not have any further opportunities to develop their ICT skills in school beyond those acquired through use supported by the teacher during learning activities.
- Although valued, the use of IWBs by pupils is not subject to explicit evaluation, particularly as the National Curriculum does not require it. However, the independent use of ICT tools by the pupils is valued in the evaluation of end products, but non-use of ICT is not penalised. There is sporadic use of the IWB in evaluation of pupil performance in various curriculum areas.

MOTIVATION, PARTICIPATION AND CONFIDENCE

- **Impacts and enablers**

- Pupils have easily acquired basic knowledge to work with ICT in a motivated, confident and self-assured way. Continued use helps them to develop their ICT skills further.
- In this cluster group specifically, ICT work with pupils in the classroom and the pupils' work with the IWB has enabled them to acquire skills which go beyond those defined in the National Curriculum.
- It is anticipated that IWB learning activities will continue for these pupils, at least throughout their basic schooling. Pupils often encourage their teachers to use IWBs in teaching and learning processes.

PARTICIPATION IN ALL ASPECTS OF SCHOOL LIFE: ACADEMIC, SOCIAL, PERSONAL

○ **Impacts, barriers and enablers**

- Besides some of the specific functions provided by the IWB software, pupils work with the Windows operating system. They use basic functions in Microsoft Office tools (such as Word and PowerPoint) with relative confidence and independence for editing and sharing materials and digital data, and also use web browsers.
- ICT resources are seen as learning tools to develop skills in other curriculum areas.
- The use of ICT has increased the learning pace of pupils and has presented additional learning challenges, supporting creativity and innovation and enabling pupils to share and promote their achievements. This is achieved, for example, through participation in the school blog and encouraging participation of other family members.
- Pupils develop independence in the use of ICT throughout their schooling. They are aware of copyright and intellectual property concepts, albeit in a rudimentary way, according to their level of schooling.
- Pupils are not particularly self-sufficient as far as safe use of the internet is concerned: all use is within the context of the classroom, completely planned, controlled and monitored by teachers.

4. REFERENCES

○ **Sources:**

- Interviews with project coordinators, ICT trainer and teachers, and observation of lessons.

○ **Further information:**

- School portal (www.geamangualde.net).
- School learning platform (<http://www.geamangualde.net/Principal/Jornal/Jornal.asp>).
- Inovar online support portal (www.inovar.pt).
- 'Virtual School' website (www.escolavirtual.pt/).
- Examples of school blogs (www.eb1-lobelhe-mato.blogspot.com and www.eb1-mangualde.blogspot.com).