



Case studies

6. Mäntymäen Koulu, Kauniainen, Finland

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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

Mäntymäki public primary school is one of three Finnish schools in the town of Kauniainen (Fi)/Grankulla (Se), located about 15km west of Helsinki. The school is situated in a bilingual region with 58 per cent Finnish speakers, and offers Swedish language immersion¹ as a teaching tool for one third of the pupils. Approximately 350 pupils attend the school, with 20 pupils in each class.

Pupils start at the school in the year they turn seven. They can complete compulsory education (until the age of 16) and matriculation examination in the town of Kauniainen. In recent years the number of pupils has declined, so the school aims to attract more pupils from nearby towns in the future.



The school buildings are in very good condition. The first parts were built in the 1950s with additional annexes added later. Computers are located in classrooms and in various other areas of the school, such as the library, where teachers and pupils can easily access them. Mini-laptops are currently being piloted. As all the computers are so called 'thin-clients'² any pupil can log-on to any of the computers and access their personal data files. The school also has its own wireless network.

There are 18 full-time teachers, 4 teachers with skills in supporting children with special educational needs, and 9 classroom assistants. Four additional teachers provide lessons in subjects such as Islam, German, dance and handicrafts. Pupils attend school for 188 days each year, with lower classes attending for 20 hours a week initially. In recent years, the school has been obliged to offer after-school activities to pupils: 70 per cent of the parents have signed-up, choosing to use the facility for three or five hours a day. After-school activities include clubs and opportunities to do homework, but mostly focus on non-educational activities under the supervision of classroom assistants.

¹Language immersion:

http://en.wikipedia.org/wiki/Language_immersion

²Thin-client:

<http://en.wikipedia.org/wiki/Thin-client>

2. EXAMPLE OF PRACTICE

Science lesson about black holes

The school has integrated ICT into many of its teaching practices. In addition to computers being readily available, teachers also have video projectors (beamers) and overhead scanners that allow parts of a book to be projected on to the wall. In an observed lesson, Pupils in a Grade 5 science class watched a video about black holes. The video was obtained by the Finnish Broadcasting Company, YLE, through their educational portal, Areena. It is mainly in English, with Finnish subtitles. Seating arrangements differ from classroom to classroom. In this room pupils mostly sit in groups of four, with the teacher's table at the side of the room.

Writing about Finnish Easter traditions

In another observed lesson, Grade 1 pupils used mini-laptops to write a story about Finnish Easter traditions. The assignment asked pupils to describe three things: what happened before the picture was taken, during it and after it. All pupils have use of a mini-laptop, running a Finnish version of Linux and OpenOffice for word processing. The pupils can log on to their profile from any computer in the school to save, access and edit their folders. The teacher explains that the use of an external mouse is preferred practice, as some young children have difficulties using the trackpad mouse.



3. IMPACT, BARRIERS AND ENABLERS

3.1 SCHOOL

ICT DEVELOPMENT PLAN, IMPLEMENTATION STRATEGY, ORGANISATIONAL CHANGES AND ATTITUDES

- **Impacts**

- A student-centered approach, inquiry-based learning, and teacher teams per year group are central to implementing the school's vision. The Mäntymäki school shares a common ICT strategy with the Finnish education system, which is based on the 2008-2012 ICT strategy for the town of Kauniainen, and the broad objectives set by the National Board of Education. Openness is one of the founding ideas of the ICT strategy, having adopted Free/Libre Open Source Software (FLOSS) as part of its strategy since 2007.



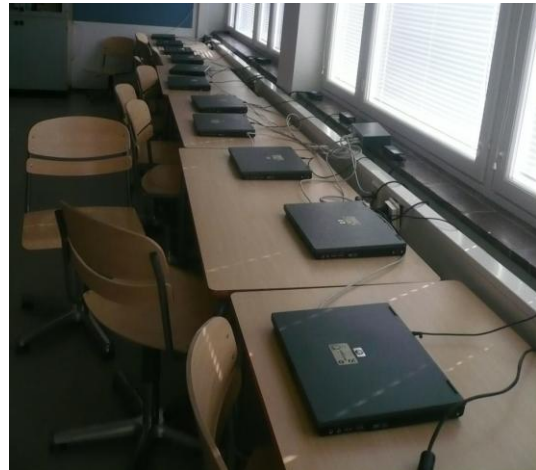
- **Enablers**

- The Constitution of Finland states: 'the basic right to education and culture'. A key enabler is the concept of 'Centralised steering – local implementation'. This means that municipalities can freely make their own implementation decisions based on core curricula, government planning and information.
- In 2007, the school formed a team of three people to work directly with the Superintendent of Schools. This approach enables smooth communication between all stakeholders. The shared strategy at town level and school level also helps all stakeholders to focus on common goals. Additionally, the school has prepared a vision paper for 2015 anticipating the changes that might take place in the region, and how these might affect the school (for example, FLOSS, ICT, and the declining number of children).

RESOURCING

- **Impacts**

- The major impact of the shared strategy at town level is that the Finnish education system in Kauniainen has implemented the FLOSS strategy throughout all three schools. All end-user computers run on Ubuntu Linux taking advantage of Linux Terminal Server (LSTP). This allows schools to achieve 'more with less'. The change management process (that is, switching over from a proprietary system to FLOSS) has been central to the success of the project, with pre-emptive training sessions for staff.



- **Barriers**

- Even though there has been a key focus on pre-emptive training of staff and teachers, more detailed and personalised training is needed. Additionally, some of the dedicated educational software does not support cross-platform use or does not have Linux alternatives, which can cause confusion.

- **Enablers**

- The school has approximately 400 computers available and, as they all run as thin-clients, the technical requirements for performance and operating systems remains low. System administration requirements are typically low meaning old computers can be refurbished, while new ones can be deployed.

THE CURRICULUM AND ICT

- **Impacts**
 - Although ICT is not taught as a specific subject, it has well-defined goals in the school curriculum. Teacher teams representing each level in the school have developed their own implementation plans for their respective year groups.
- **Barriers and enablers**
 - As ICT is not taught as a separate topic, there may be some skills gaps. For example, it was observed that none of the pupils used the ten-finger system when typing. It could be argued that such a skill will be necessary in the future.

ASSESSMENT OF ICT AND ICT FOR ASSESSMENT

- **Impacts**
 - The school considers ICT as a tool to achieve other things, but also as a success factor for increasing school satisfaction in broader terms. ICT skills are not formally assessed, but the ICT strategy sets targets for pupils to achieve by the end of their primary education (age 12).

ORGANISATION OF SUPPORT

- **Impacts**
 - Hardware, intranet and applications services are bought from a third-party company. There is one technical support person in the school. Each school level has its own team of 5 to 6 teachers, with one taking an ICT support role.
- **Barriers**
 - The tailor-made system needs occasional debugging and some parts are developed on-demand as needs and requirements dictate. This can create some practical issues.

3.2 TEACHERS

ICT AS A TOOL FOR COMMUNICATION AND COLLABORATION

- **Impacts**
 - ICT is the main tool for communicating between home and school. Teachers can choose to use email or a Moodle-based system, although paper-based communication strategies do still exist. The school has also introduced online polls to gather rapid feedback on minor issues from parents.

- **Enablers**

- The Finnish Government is implementing an extensive Information Society Programme in all fields of administration. With the help of increased state support during the 1990s, Finnish schools and educational institutions were equipped with computers and connectivity. By and large, the technological objectives of this project have been achieved and the focus has now shifted to content production, teacher training and increased use of information networks.

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

- **Impacts**

- School administration software allows pupils and teachers to log on to their desktops remotely. The school is currently investing in a new version of open source software for the intranet and school administration.

THE PEDAGOGICAL ROLE OF ICT TO IMPROVE LEARNING AND TEACHING

- **Impacts**

- The school has no dedicated funding for teachers' ICT training, but takes advantage of internal and external training when needed. Each teacher team can define their own needs for training and decide which member of the team attends. Experiences and materials are then shared within the team.



- **Barriers and enablers**

- Interesting everyday practices in the use of ICT were observed, but teachers have little time to share them. External training sessions can create an environment where sharing of ICT practice becomes more natural, even within the school.

ICT SKILLS

- **Impacts**

- Teachers range from 25 to 55 years old, with varying ICT skills. All are trained to Level 1 and 2 as recommended by the National Board of Education, and 30 per cent of teachers have also achieved Level 3. The focus is on pedagogical use of ICT. Some have a mini-laptop for their personal use.

PARTICIPATION, MOTIVATION, CONFIDENCE AND PERFORMANCE

○ Impacts

- Teachers are motivated and confident in their work. The school participates in a pilot called 'Ubiquitous Information Society' with 12 other schools Finnish schools. This has created an interesting network beyond the town's reach.

3.3 LEARNERS

ICT SKILLS

○ Impacts

- In the absence of formal assessment in the use of ICT, different evaluation methods can be used. In one of the observed lessons, Grade 5 pupils gave presentations of their project using slide shows that they had prepared. The slides included the problem statement, hypothesis, possible answers, and references to resources used on the internet and elsewhere. The pupil gave their own evaluation of the project's success. During the presentation, the other pupils made written comments.



○ Enablers

- The ICT strategy outlines broad goals, such as critical media literacy and skills to collaborate and work in an interactive environment, so allowing diverse assessment methods to be used.

MOTIVATION, PARTICIPATION AND CONFIDENCE

○ Impacts

- During class observations, pupils were given lots of opportunities to communicate and participate in learning experiences within a constructive environment.

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

○ **Impacts**

- The school draws its pupils from prosperous and well-educated families: on average, 60 per cent have an academic degree. The pupils seem happy at school.

4. REFERENCES

○ **Sources:**

- Interviews with teachers and observation of lessons.
- Policy report: The Education System of Finland (www.oph.fi/english/SubPage.asp?path=447,4699).
- Policy report: Key areas for development (www.oph.fi/english/pageLast.asp?path=447,4699,4762).

○ **Further information:**

- School website (<http://mantymaki.fi/index.php>).
- School website: ICT goals (http://mantymaki.fi/index.php?option=com_content&task=view&id=46&Itemid=107).
- Ubiquitous Information Society Action Programme 2008-2011 (www.arjentietoyhteiskunta.fi/files/73/Esite_englanniksi.pdf).